Specialist studies continued

Architecture

Onyx has focused on creating a high quality, innovative proposal that recognises the character and sensitivity of its landscape setting whilst minimising visual impact.

Measures designed to mitigate this impact include the location and orientation of the building on the site, the curved profile of the building and the retention of the flood bunds along the river. Also the overall height of the proposed building is lower than would normally be the case, as major elements of the plant are below ground. New landscape planting is also proposed to strengthen the existing vegetation to the north of the site and to reflect the native planting on the western side of the river.

Most of the building would be a maximum height of 24 metres with an arch rising to 27 metres. The chimney height proposed is 65 metres from the ground. As well as a visitor centre there is also a proposed visitors' gallery on the eastern elevation, incorporating a glazed conservatory which will provide views into the internal process areas of the building.

Onyx South Downs Limited
Freeman House, Ellen Street
Portslade BN41 1DW
Tel: 01273 410231 Fax: 01273 418 144
www.onyxsouthdowns.co.uk

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Summary of proposals and results of studies

ONYX SOUTH DOWNS WORKING FOR A BETTER ENVIRONMENT

The waste strategy

To avoid the use of landfill and increase recycling and recovery via:

- Reduce and reuse initiatives
- Sorting of dry recyclables
- Composting of green garden waste
- Energy recovery

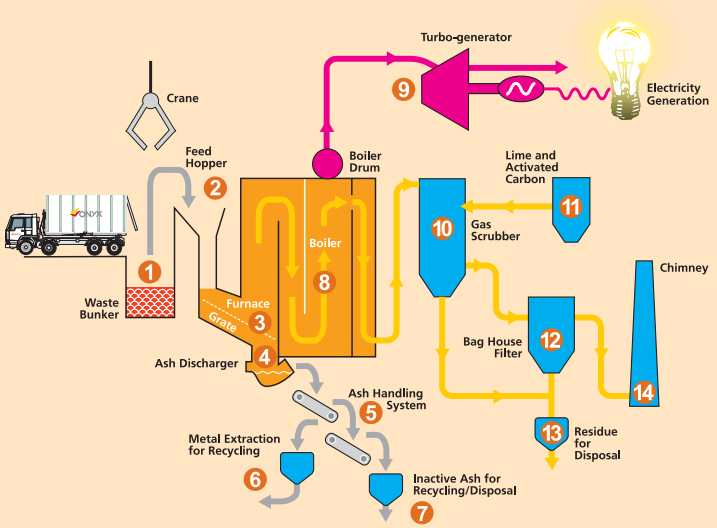
Introduction

Onyx South Downs Ltd has submitted a planning application to East Sussex County Council to build an Energy Recovery Facility on land at North Quay, Newhaven. Should permission be granted, the facility will process 210,000 tonnes a year of residual household waste from East Sussex and Brighton & Hove, which has not been reused, recycled or composted, and reduce the area's dependence on landfill. It will also act as a transfer station for recyclables from local Household Waste Recycling Sites.

This facility is part of an integrated waste management solution for the area being introduced under the terms of a contract with East Sussex County Council and Brighton & Hove City Council. The application follows the submission of planning applications for other facilities in strategic locations which, when built, will ensure tough Government targets for recycling, composting and landfill avoidance are met or exceeded.

Turning waste into a resource

The proposed Energy Recovery Facility is designed to export around 16.5 megawatts of electricity. Supplied to the electricity distribution network, this is equivalent to powering more than 16,500 homes. The facility is designed to complement and not compromise recycling and composting and is part of a move to introduce more sustainable ways of dealing with residual waste. Once in service the facility will handle just over 50% of the household waste generated, meaning that high levels of recycling and composting will still be required, particularly if waste volumes continue to grow.



Collection and combustion

After various materials have been separated for recycling via kerbside recycling schemes or the network of Household Waste Recycling Sites, the remaining waste can be processed at the Energy Recovery Facility. It is tipped into a bunker (1) within the waste reception hall and placed by a crane into a feed hopper (2). It then passes down a feed chute onto the grate (3). The action of the grate turns the waste to allow it to burn fully. The burnt out ash passes through the ash discharger (4) onto an ash handling system (5), which extracts metals for recycling (6). The remaining ash is sent for recycling within the construction industry or for disposal (7). All these processes are enclosed.

Electricity production and air pollution control

Hot gases produced in the combustion process pass through a water tubed boiler (8) where they are cooled; the water heated by the gases then becomes steam. A turbo-generator (9) uses the steam to produce electricity both for the facility's consumption and for export to the electricity distribution network. There is also the potential for making steam or hot water available for district heating should the infrastructure become available.

The gases from the boiler go through an extensive flue gas cleaning process. This consists of a gas scrubber (10) where the acid gases are neutralised and activated carbon (11) is added to remove other pollutants. Finally, a bag house filter (12) removes any remaining particulates. The resulting residue is then sent either to a specialist recycler or to a facility licensed to dispose of this type of waste (13). The cleaned gases are finally released to the atmosphere through the twin chimneys (14).

The process - how it works

The proposed Energy Recovery Facility would generate electricity sufficient to power more than 16,500 homes.

The planning application & specialist studies

Planning application

The full planning application can be viewed at the East Sussex County Council offices in Lewes: County Hall, St Annes Crescent, Lewes BN7 1UE.

The Environmental Statement, Supporting Statement, Non Technical Summary, Design Statement and some plans and drawings will also be available to view on our website www.onyxsouthdowns.co.uk

The planning application contains the following documents:

- Application form and certificates
- Environmental Statement and Technical Appendices
- Non Technical Summary of Environmental Statement
- Detailed plans of the site and proposed buildings

and is accompanied by a:

- Supporting Statement
- Design Statement
- Sustainability Statement
- Strategic and site specific Best Practical Environmental Option reports
- Alternative Sites Assessment Report

It is possible to purchase copies of all the application documents from Onyx as hard copies or on CD. For further information about the planning application visit our website www.onyxsouthdowns.co.uk or contact Onyx South Downs on 01273 410231.

Specialist studies

The Technical Appendices to the Environmental Statement contain detailed specialist studies. Each study was undertaken by independent consultants. To ensure that the environmental impact assessment is as comprehensive and accurate as possible, extensive consultations have been undertaken with East Sussex County Council and other technical consultees on the issues to be considered in the studies and the methods used.

Some of these studies are outlined on the following pages.

Air quality and health

A comprehensive study was carried out to assess existing air quality conditions (see sampling locations on map). Next, the emissions from the facility were identified and used as inputs to model the additional ground level concentrations. The study took into account various factors including climate and terrain. These predicted concentrations, in addition to the existing background levels, were compared with the various standards set by the European Union, the World Health Organisation and the Government to protect human health. The conclusion was that ground level concentrations with this facility in place, along with any additional road traffic generated, would be well within air quality standards and guidelines set to protect human health.

A health risk assessment has been undertaken with respect to long term exposure to the facility's emissions (the main emissions from the twin chimneys would be carbon dioxide and water vapour with minimal amounts of oxides of nitrogen, trace elements, heavy metals, dioxins and particulate matter). In line with the precautionary principle, this assessment was based on the maximum possible risk to any person.

Risk from dioxins and heavy metals, for example, was calculated by assuming that a person lived and stayed their entire life in the facility's zone of maximum influence and consumed significant amounts of their food from that same area. Based on this and other "worst case" scenarios, the assessment concluded that the energy recovery facility is **safe and will not contribute additional risk** to anyone's health in terms that could be considered significant.

Controlling emissions

Onyx will also submit an integrated pollution prevention control application to the Environment Agency, which ensures that potentially polluting substances are controlled to a **safe** level. Once approved and the facility is operational Onyx must, and will be required to, comply with stringent emission controls which will be monitored by the Environment Agency for the life of the facility.

Department of Environment, Food and Rural Affairs

Independent work carried out by the Government has also demonstrated that the health risk imposed by incineration of waste is insignificant, as stated in DEFRA's "Health Effects of Waste Management" report.

Specialist studies continued

Natural heritage

A detailed survey of the existing nature conservation interest within the site and surrounding area was undertaken in 2004, along with monthly bird surveys along the River Ouse valley.

The conclusion was that during construction and operation of the facility these habitats and species would not be adversely affected.

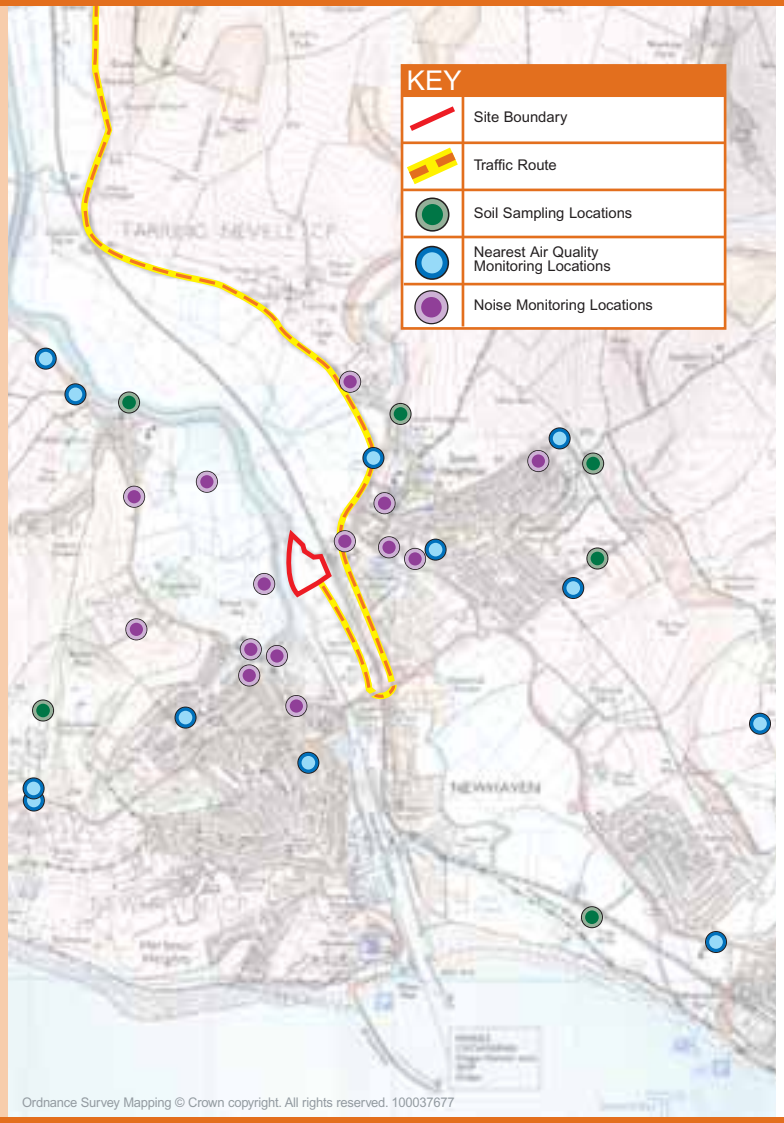
Traffic

The proposed development will generate traffic mainly between Monday and Friday with a maximum of 224 lorry and 40 car trips on a weekday. (A trip is a one way journey either to or from the facility).

During AM and PM rush hours there will be 16 and 19 trips an hour respectively. The maximum number of trips of 45 an hour will occur outside rush hour between 9am and 10am.

Background traffic counts at the A26 New Road/Drove Road junction have been predicted at the AM and PM rush hour to be 722 and 793 trips an hour on average respectively, and 640 trips between 9am and 10am.

The proposed development therefore represents an increase in traffic flow of less than 2.5% at rush hours and only 7% during the hour when the facility generates most traffic.



Contamination

A detailed investigation was undertaken in 2004 to determine the condition of the soils and groundwater underlying locations around the site (see sampling locations on map). The results showed that low to moderate concentrations of certain pollutants remaining from previous industrial uses were present across the site. Various measures are proposed to clean up the site to standards acceptable for development, to manage the disposal of excavated materials and to protect workers and the water environment during construction of the facility.

Noise

Background noise levels at various monitoring points (shown on the map) in the surrounding area have been recorded. These were compared to the noise levels expected from the construction and operation of the facility. No significant noise impact is predicted from the additional local traffic associated with the site. There will be no significant noise impact from the day or night time operation of the facility.

Flood risk

This site lies within a tidal flood area and therefore a flood risk assessment was carried out taking into account a 1 in 200 year flood scenario. To safeguard the site and help reduce any impact to neighbouring properties a comprehensive flood alleviation scheme would be implemented, having first been agreed with the Environment Agency. The scheme will involve placing flood protection around the site, together with measures to reduce the rate of flood water flow across the area of North Quay.

Landscape and visual impact

The impact of the construction works, the completed building and the twin chimneys on the surrounding landscape has been assessed. The facility would be visible from a number of locations in the surrounding area, hence great efforts have been made to design a building of high architectural quality which harmonises with the local environment.