

### Description

- ◆ A £150m Energy Recovery Centre in Cornwall (CERC) for the incineration of household waste materials that was destined for landfill by way of a combined heat and power (CHP) process producing electricity and heat
- ◆ CERC has been designed to produce approximately 16MW of electricity with the heat by-product being utilised by the local china clay business
- ◆ CERC has been designed to be one of the lowest polluting energy recovery facilities in the UK
- ◆ **Winner of the Michelmores Property Award for Sustainable Project of the Year 2017.**

### Benefits Delivered

- ◆ Reappraised the proposed HV distribution network to provide increased resilience and significant cost reduction in the HV network
- ◆ Provided commentary on concept design information and rationalisation of the proposals
- ◆ Undertook full spatial planning of mechanical & electrical plant including the distribution ductwork, heating and domestic services including primary containment routes within the constraints of the building
- ◆ Fully co-ordinated mechanical & electrical services with the structural & building elements utilising Revit MEP to inform a BiM
- ◆ Provided a cost effective design exploring and presenting various options to the client
- ◆ Exploring emerging technology to minimise energy consumption and reduce maintenance liabilities
- ◆ LED lighting was designed within the process areas at high level to provide high output efficient lighting, reducing energy consumption over alternative high bay options and reducing the maintenance requirements
- ◆ Detailed design was undertaken to achieve a BREEAM rating of 'Very Good' by utilising modern technology.



*£150m Energy Recovery Centre to treat up to 240,000 tonnes per annum residual municipal solid waste*



*"This was a complex project to design and to deliver. The end result is very impressive."*  
**Sarah Buck Property Awards Judge**

### Involvement

- ◆ Worked closely with a multi-national design team responsible for the delivery of the process works that required detailed co-ordination
- ◆ Consultation with the utility company ensuring compliance of the 132kV HV network design
- ◆ Undertook a peer review of the HV distribution network and redesigned the system, reducing the requirements of switchgear and associated monitoring and cabling providing additional resilience
- ◆ Detailed design of the earthing networks ensuring that the standing and touch voltages were maintained, including the introduction of surge protection and earthing perimeter taping
- ◆ Lightning protection system designed taking into consideration the configuration of the distribution network infrastructure verifying if the site was considered a "hot" or "cold" and providing a detailed design in accordance with the Clients insurers and British Standards
- ◆ Security design provided to enhance security to the site with CCTV cameras protecting the perimeter and key entry positions, with access control system to secure areas
- ◆ Detail site wide data network through fibre optical grid linking of all the remote buildings with localised data cabinets and Cat 6 data cabling to final outlets
- ◆ Integration of sprinklers, flame/smoke/heat detectors, fire cannons, fire hydrants and hose reels. Directional water cannons, alongside infrared cameras to detect hot spots in the waste bunker. Capable of being operated from either the central control room or crane cabs via joystick. Provided technical support to the Fire Protection and Detection Specialist, and input on the design of the infrastructure for these systems
- ◆ Wet heating system to back-of-house areas within the Administration building utilising waste heat from the Energy centre via plate heat exchanger
- ◆ Design of site wide central wash down system via break tank and booster set.