

Energy from Waste operator uses Danley dowels to extend the service life of concrete hardstandings

In early 2024 The Day Group, supplier of aggregates and recycling services, is set to begin processing IBA (Incinerator Bottom Ash) at a new facility in Wellingborough, Northamptonshire. With the site expected to process around 200,000 tonnes of IBA per year, it needed to be equipped with a hardstanding that was fit for purpose and offered longevity, even under heavy usage.

The main contractor, Stepnell Developments Ltd, worked with specialist flooring contractor Trent Construction Services to specify Danley dowels - knowing that the shape of the dowels would offer a longer-lasting solution, with better load distribution, reduced point loading, and less stress on the concrete.



A flagship project

When completed, the facility will have a key role in the UK's waste management infrastructure and contribute greatly to the growth of the circular economy.

It will process around 200,000 tonnes of IBA per year from partner Encyclis' Rookery South and Newhurst energy recovery facilities (ERF). The two facilities are designed to divert over 900,000 tonnes of non-recycled commercial and domestic waste away from landfill each year by using it as fuel to generate sustainable baseload electricity for the National Grid.

The plant, which is located on a 6-acre site on OGEE Business Park on Wellingborough's Finedon Road Industrial Estate, features a 16,756m² external yard. As well as the weight of the bottom ash being processed on-site, the slabbed yard area must handle a constant flow of incoming and outgoing heavy goods vehicles.

Plate dowels strengthen steel concrete reinforcement

Usually known for its innovative Strategic Reinforcement Design, Danley UK was able to provide a dowel solution which, used in conjunction with steel reinforcement, would extend the life of the slab. By moving away from a traditional round dowel to a flat alternative, Trent Construction was able to significantly lower the risk of concrete cracking and offer best-in-class joint deflection and restraint control.

Calvin Pretorius from Danley explains, **"Unlike traditional round dowels, the plate dowels specified for the project offer two-directional movement. By allowing lateral and horizontal movement, the design eliminates any restraint in the concrete slab which may otherwise lead it to crack. In sites with heavy traffic, minimising restraint and ensuring high load transfer across slabs is particularly important, reducing maintenance and downtime and offering a longer life span."**

Project information

- Client: The Day Group Ltd
- Project: Wellingborough Facility Update
- Location: Ogee Business Park, Wellingborough
- Concrete Hardstanding Area: 16756m²
- Main Contractor: Stepnell Ltd
- Design Slab Engineer: HSP Consulting
- Concrete Contractor: Trent Construction Services Ltd
- Completion Date: October 2023

Danley's Services

- Technical design support to the engineer
- On-site installation training and guidance on best practices for quality assurance

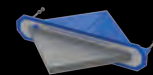


Project Details:

- 200mm PAV2 C32/40 Concrete Slab
- A252 steel mesh reinforcement
- PD3® Dowel Cradles at contraction joints
- Danley® Dowels at construction joints
- Joints spaced at 4m x 6m



PD3 Cradle™



Danley™ Dowel





Reduced construction time for concrete hardstandings

As well as offering a long service life, the installation of the Dowels also offered significant time savings. Typically, round dowels are installed with a spacing of 300mm. The plate dowels used in the construction of the hardstanding offered improved load transfer capabilities, which allowed the dowels to be placed at wider intervals. As well as equating to a materials cost saving in terms of the number of dowels required, the solution also speeded up the installation process and reduced time on site.

Chris Henderson, Director at Trent Construction Services, explains **“We are familiar with the shortcomings of round dowels, so we were keen to find an alternative dowel that would work with the hardstanding design we had specified. With the project focused on waste management, and project partner Encyclis’ focused on sustainability, we wanted a solution that would offer a long service life - ultimately lowering the overall carbon footprint of the project. As well as offering longevity, Danley’s tapered plate and sleeve design saved us time on-site, which enabled us to deliver the project on time and on budget. We look forward to seeing the site open in 2024 and are confident we’ve delivered a concrete hardstanding that will stand the test of time.”**

Danley’s tapered plate dowel solution complies with TR34, TR66, Britpave Concrete Hardstanding Design Handbook, ACI 330.2R-17, and ACI 360R-10 specifications and/or design guidance. To find out more, visit <https://danley.co.uk/danley-dowel/>