

# ROADS

## Unique pavement solution to Logistic Centre Project.

### M11 Logistics Site – Chigwell

**DHL were awarded the contract to run a logistic centre in Chigwell, Essex. An area just off the M11 was ear-marked by the client as a temporary, off site logistics facility to manage all inbound construction traffic into the more congested London site. The 33,000m<sup>2</sup> site was designed to provide security screening, scheduling and vehicle marshalling facilities of all inbound goods, controlling deliveries in real time in line with the site's requirements. PJ Carey Construction, part of the Carey Group Plc, were awarded the contract to construct the project.**

A heavy duty pavement construction was required alongside an extremely demanding, tight construction period. Bardon Composite Pavements\* proposed at tender stage an alternative pavement solution which fulfilled the requirements of the project in terms of pavement performance and durability; speedy construction timescales and which also satisfied the client's responsible sourcing of materials criteria.

A 200mm slab of unreinforced roller compacted concrete (RCC) C32/40 was proposed on top of a 150mm thick Cement Bound Granular Material C5/6 as an alternative to a CRCP concrete slab on top of Type 1. Both elements of the pavement are fully recyclable. The CBGM aggregate utilised a quality, sustainable source of aggregate – Incinerator Bottom Ash Aggregate (IBAA) - provided by Ballast Phoenix Ltd. This 100% recycled product was produced from one of the six plants operated by Ballast Phoenix in the UK. The aggregate was transported by road only 11 miles from the site. Using Ballast Phoenix's own calculator, the CO<sub>2</sub> embodied for the production and transportation was 2 kg for every tonne delivered. Early trials proved IBAA as a material suitable for use in the CBGM in terms of strength and quality and its usage resulted not only in a reduced cost per sq m but also in overall environmental impact.



Roller Compacted Concrete provided the finished pavement surface over the bulk of the site with the exception of the entrance kiosk areas whereby a bespoke asphaltic surface course was placed. Roller compacted concrete combines high performance, strength (Flexural Strength 7N/mm<sup>2</sup>; compressive strength 55N/mm<sup>2</sup> at 28 days) and durability with a fast, efficient pavement construction methodology. Both the CBGM and RCC were mixed on site using a high output continuous mixing plant and placed using a tracked paver with a high compaction screed. Compaction was achieved by vibratory steel drum and pneumatically tyred rollers. Compliance testing was carried out using an independent, accredited laboratory. Outputs of 2000 sq m were achieved daily in a busy construction area.

Bardon Composite Pavements provided a complete pavement service in this instance identifying a best value pavement solution to deliver optimal whole life performance.

\* Bardon Composite Pavements was created in 2009 to integrate three businesses: Sitebatch Technologies; Needham and Cullen and Roller Compacted Concrete Company.

■ The new company has relocated to Maltby –  
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