

## ACO – part of UK plc Olympic Success



ACO, designated as “Supplier of drainage systems (Olympic venues) to the London 2012 Games”, supported the Olympic build by meeting diverse and complex drainage requirements across many Olympic venues and infrastructure improvements. As a company, it reflected the excellence of the UK construction industry, providing wide-ranging and in-depth expertise with leading, innovative, high performance and sustainable drainage solutions.

*“The Olympic Park is the story of UK plc written on an epic scale. It’s the story of expertise, imagination and ambition – of groundbreaking engineering, radical new approaches to sustainability, impeccable health and safety, and the highest standards of craftsmanship and professionalism.”*

Taken from the foreword by Jeremy Hunt, Secretary of State for Culture, Olympics Media and Sport in the ‘London 2012 – a global showcase for UK plc’ report.

And it certainly was. The huge success of the 2012 Olympic and Paralympic Games brought our nation together and made us proud to be British. The preparation involved needed world class engineering to produce the world class infrastructure the Olympic Delivery Authority demanded to make the Games such a success.

The task was huge. It transformed a run-down area in East London covering parts of Stratford, Bow, Leyton, and Hackney Wick with many new sports venues, the Olympic Village, the International Broadcast Centre and Main Press Centre. A new shopping centre, Westfield Stratford City, was also opened adjacent to the Olympic Park and other major works carried out on improved transportation infrastructures and extensive landscaping of areas.

The amount and quality of work required was a showcase of the brilliance of the UK construction industry. Working with many world class architects, engineers and contractors, ACO embraced the challenge to deliver often complex and bespoke drainage solutions across many of the Olympic developments – making it representative of the best of the UK construction industry.

### Delivering for diverse projects

#### Olympic Stadium

An Olympic track has to be very precise to ensure any records set during the games are true and fair. The installation of the track started with the drainage channels, which are marked by the white internal perimeter. These required very precise tolerance levels on line and level to ensure the special Mondo sports running surface was uniform. Engineers and independent authorities checked everything was at the same level and line on many occasions, covering every stage through the building of the track to ensure very exact installation. Accuracy was paramount and, for the final track to pass the exacting requirements, the substrate needed to be spot on. Standing water would also not be acceptable for Olympic conditions and the ACO drainage channels needed to provide guaranteed efficiency as well as fine installation tolerances.

The IAAF and IOC standards for running tracks do not allow for heavy duty use but this track was also to be subjected to the rigours of the opening and closing ceremonies. The drainage channels needed

to handle the loadings of the machinery and moving vehicles used in the ceremonies, including Spice Girls on top of taxis! Once the opening ceremony was complete, the stadium needed to be readied for the sports events to follow. This meant the track also needed to support the use of a 40 ton articulated vehicle used to re-turf the stadium. Assurance of the strength of the channels, which needed to handle similar incidental loads to drainage used on heavy duty highways or airports, was provided through onsite trials and independent testing.

In all ACO supplied around 850m of Sport Channel Drainage and 2000m of channel drainage system for areas including the 400m track internal perimeter and warm up tracks. Other areas included camera pits, podium areas, athlete entrances, the water jump, across vehicle, pedestrian entrances and sand pits. Although there appears to be only one jump sand pit when events are watched on the television, there are in fact four with run-ups at both ends so they can be used in either direction. This is to allow for wind direction to ensure any records set have not been wind assisted and to enable scheduling around other events happening in the stadium.

#### Aquatics Centre

ACO supplied large lengths of drainage for the Aquatics Centre including around 600m of stainless steel drainage channels and heel-safe gratings for the changing rooms. The drainage was custom built to match the architect's drawings with complex interlocking channels requiring careful design, expertise and precise installation.

Outside the centre, ACO supplied drainage for all of the plaza walkway outside the front gates to withstand loads of up to 25 tonnes with perforated gratings along with galvanised mild steel channels with laser cut slotted heel safe gratings for the temporary stands that were effectively bolted to the sides of the centre. Around the grass bank external to the building stainless steel channel was provided in three dimensional layouts to handle the rise and fall of this area.

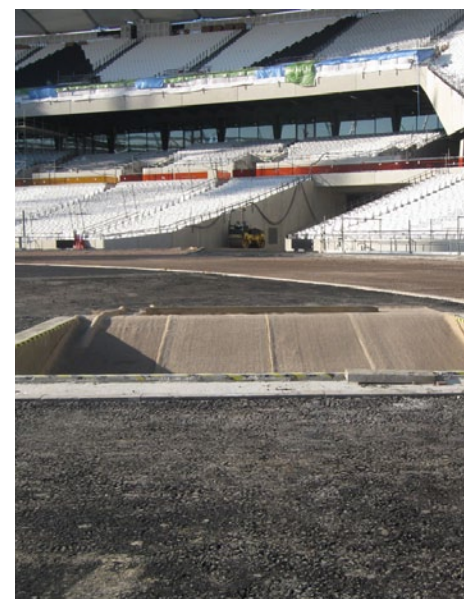
A particular challenge at the Aquatics Centre was the number of different contractors used for different sections. ACO worked carefully to provide project management and liaise with all parties involved to ensure the drainage requirements across project sections tied together correctly and matched with the different claddings used.

#### Westfield Stratford City Shopping Centre

ACO's ability to innovate and customise products to meet specific requirements was a benefit for the Westfield Shopping Centre development adjacent to the Olympic Park. In excess of 800m of drainage channel was provided covering the main shopping concourse, walkways, steps and bridges. Specially designed polymer concrete channels were fitted with discrete Brickslot gratings to meet the specific aesthetic requirements of the project with required hydraulic efficiency. The project gave another example of ACO expertise in providing bespoke solutions, working closely with its customers to ensure requirements for every aspect of an installation are met.



ACO drainage during installation.



ACO water jumps.

## Weymouth and Portland National Sailing

Academy (WPNSA)

Upgrades to the facilities at the WPNSA were completed in 2008, making it the first of the Olympic venues to be ready. To support the increased visitors associated with the Games, significant improvements were also carried out to the surrounding highway infrastructure, town centre, high streets and minor roads – designed to relieve congestion and improve accessibility to the Weymouth and Portland area.

With higher risk of corrosion from the sea air and sea water, the resin concrete used in the manufacture of ACO products offered a sustainable solution in this coastal area that would also preserve the aesthetics of the installations. ACO RoadDrain and KerbDrain products were extensively used throughout the regeneration project, covering roads, junctions and roundabouts in the area. Outside the reception area of the main WPNSA building ACO MultiDrain channel drainage was used to provide an efficient and effective solution with a traditional, aesthetically pleasing appearance to make it blend with the architectural feel of the site. Heel-safe gratings, ideal for the heavy pedestrian traffic in the area were manufactured from a composite material to also protect them from corrosion caused by salt water.



ACO channel drainage

## Other Venues

The scope of supply for projects relating to the 2012 Olympic Games was far reaching and reflects on the breadth of solutions of which ACO is capable, providing for many of the sporting and regeneration projects including the impressive Velodrome and Royal Artillery Barracks. In total ACO supplied in excess of 30,000m of channel drainage into diverse and sometimes complex applications supported by its in-depth design expertise to Olympic build projects.

## Sustainability

As part of this world stage for construction capability, sustainability was a key message. From the very start, London's bid to host the Games included "Achieving the first sustainable Olympic Games and Paralympic Games". ACO embraced the sustainability objective with investment in an intensive development programme to produce Vienite®, a new high strength recycled polymer concrete used for the manufacture of its drainage channels. Vienite contains post-consumer waste previously destined for landfill and is also recyclable, maximising its sustainability credentials. It was widely used on all projects and in itself it is a legacy of the Olympic Games, offering a high performance, sustainable solution to the whole construction industry.

## Summary

The ACO business fits well with the drive for sustainability, engineering excellence and innovation called for by the Olympic Delivery Authority. A complete commitment to supply market-leading products and engineering solutions for the Olympic construction projects was supported by a dedicated ACO Olympic team.

The Olympic build required many world-class architects, engineers and contractors to work in close collaboration to produce one of the greatest showcases of British engineering excellence. ACO played its part, displaying its expertise in drainage solutions by meeting the toughest demands for diverse applications requiring hydraulic efficiency and fine aesthetics. Working on the Olympic projects has brought a new focus on sustainability throughout the ACO business and an ongoing commitment to provide leading, sustainable solutions to the construction industry.

Many hailed London 2012 as the 'best ever Olympics' - truly a reflection on the excellence of the UK construction industry of which ACO is proud to be a part.

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