



A Fitting Campus for the 21st Century

CASE STUDY

Identified by Experian as one of the leading business hubs in Britain, Northampton has seen a flurry of investment in recent years. Perhaps its most bold – and significant – investment is the development of the University of Northampton's £330m purpose-built Waterside campus, which has seen the relocation and integration of its two main sites into one state-of-the-art centre of learning.



A Fitting Campus for the 21st Century

THE PROJECT

A new state of the art university campus near to Northampton town centre.

THE BRIEF

To design a surface water management system including SuDS solutions to manage the high quantity of water around the site including the risk of flooding from the nearby River Nene.

THE SOLUTION

A combination of channels to suit the range of pedestrianised areas and road including MonoDrain, KerbDrain, and Brickslot draining directly into swales. StormBrixx attenuation tanks were installed across the site to store the higher volumes of water as required.

Designing-out danger

The brownfield nature of the 24-hectare site posed a series of development and design challenges for lead consultants, Atkins, and architects, Moses Cameron Williams (MCW). Also, given the campus' close proximity to the River Nene, it was deemed to be at 'high risk' of flooding (as the chances of a flood occurring are over 3.3%).

Northampton has suffered extreme flooding throughout its history, notably in Easter 1998 when the town received well over a month's worth of rain in less than 24 hours. Given the increase in extreme weather episodes experienced in recent years, an effective water management network was therefore one of the biggest design challenges to overcome.

Another key element of the new campus development was the design and delivery of a robust infrastructure network, including a series of adoptable roads throughout the campus, and strong links to the town centre and wider area.

Bordering the River Nene and built on brownfield land once home to the old Northampton power station and a series of industrial warehouses, the University's new campus forms part of the burgeoning Waterside Enterprise Zone. As well as housing a significant volume of student accommodation, the campus features a 20,000sqm Learning Hub and a new low carbon Energy Centre.

Given the cutting-edge nature of the campus, which combines aspirational architecture with sustainable build principles, the functionality, aesthetics and on-going environmental impact of the finished site were incredibly important. Within this, a sustainable approach to the drainage was an integral element for the project's consultant engineers, Peter Brett Associates (PBA).



Jon Williamson, Specification Manager – East, at ACO Water Management, worked closely with the team at PBA to ensure all elements of the drainage system would match the aspirational nature of the campus. He begins: “I’d worked alongside the team at PBA on a number of different projects, and was delighted to get the call to provide further support on the Waterside campus project.

“Given the campus’ beautiful location on the River Nene, a great emphasis was placed on delivering a sympathetic yet aesthetic finish to all elements, including drainage. However, these elements also had to be able to provide effective water storage contingency capacity in the event of a flood or periods of heavy rainfall, to mitigate any significant damage to the campus.”

Capacity to perform

The flood mitigation strategy centred on using channels with a high hydraulic capacity throughout the site, and where possible, integrating sustainable drainage system (SuDS) principals into the design.

For paved and pedestrianised areas in open view, PBA specified ACO’s Brickslot channel drainage system. Designed as standard with a heelguard 10mm off set drainage inlet, ACO Brickslot is a subtle and unobtrusive grating which, when combined with ACO MultiDrain MD channels, can be used as a solution to complement discreet drainage applications. Ideal for use against building facades, and compatible with most paving materials, the vertical sides of the grating enable pavements to be laid directly to the unit’s edge. A number of the Brickslot channels also drained directly into swale outlets, located throughout the site to help facilitate the release of surface water back into the local environment in a controlled way.

Crucially the presence of swales throughout the site not only bolstered the site’s overall water management capabilities, but further improved the aesthetics and biodiversity of the campus by boosting the volume of green spaces.

Kerb enthusiasm

Jon continues: “Another key area of the design identified by the consulting engineers, given the volume of road infrastructure, was kerb drainage. Specifically, they needed to find a unit that would match the finish of the solid granite paving that would be used throughout the campus. ACO’s KerbDrain met both the structural design and hydraulic capacity criteria, but crucially we were able to tailor the finish to the PBA’s exact specification on this occasion with a texture to match the surrounding granite.”

For quieter roads and other areas such as car parks, PBA turned to ACO’s MonoDrain channel. MonoDrain is a monolithic general purpose channel drainage system made from high performance, recyclable Vienite® polymer concrete. Unlike other monocast solutions, the inherent strength of ACO’s MonoDrain channels mean they require significantly less concrete haunching when being installed. As such, it can offer a £5/m saving on installation costs.



Finally, a series of textured RoadDrain channels, also made from Vienite® polymer concrete and built to Load Class F900, were also installed at the main entrance to the campus, near to the River Nene. PBA decided to install such high load bearing capacity channels in this location as it was the primary point of access for campus-wide deliveries and HGVs, as well as being a major bus route for students travelling to and from the campus.

Final thoughts

Jon concludes: “What ultimately helped ACO secure the tender from PBA was not only our flexibility in design, but the ability to provide a broad portfolio of solutions to create a SuDS focussed solution on a high flood risk site from a single point of contact. As arguably one of Northamptonshire’s premier developments in recent years, it was an incredibly diverse and exciting project to be involved in, and one we are very proud to have our products installed throughout.”

The Waterside Campus opened its doors in 2018, welcoming over 12,000 students as they embarked on the next stage of their further education.

For more information on ACO’s broad portfolio of water management solutions for major infrastructure projects, please visit www.aco.co.uk

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