

## SUPERSTORE PUTS THE ENVIRONMENT FIRST

Trees and soil will manage roof water runoff on-site



The open expanse of most car parks makes them unpleasant places in almost all weather conditions, whether howling wind or merciless sun.

The developers of a new Superstore in New Milton, UK, knew they wanted to have a significant tree canopy in their car park to help shade the paving, thereby reducing temperatures and creating a more pleasant environment for their customers. A recent decision by the New Forest District Council, concerned with local tree health and longevity, mandated a minimum of 20 m<sup>3</sup> of lightly compacted soil per street tree. This meant that the store developers had an unexpected opportunity to combine tree growth with on-site stormwater management using the same medium: soil.

Lhc, the site designers, realized that most typical solutions would separate tree planting and stormwater management using two individual systems, whereas the Silva Cell addressed both concurrently. They decided to use the Silva Cell to achieve both goals, and began planning for a lush canopy of trees that could also help manage the rainwater coming off the roof of the store at source.

Lhc situated 5 London planetrees in the middle of the car park. Each tree was 6 – 7 m high, 30 – 35 cm around, had a 4 m clear stem, and a 90 cm root ball at the time of planting. Water from the 800 m<sup>2</sup> Superstore roof will route through the 99.92 m<sup>3</sup> of soil contained in the planting area, almost all of which is underneath the car park. The water will first enter a back inlet gully pot to help dissipate the energy before being piped to the Cells. (This also acts a backup system should the Silva Cell area become overwhelmed. If the water backs up to this gully, then it will be shed into the car park and enter into the conventional sewer system.) During a normal rain event the water will pass through the cells into a holding tank. If a critical water level is reached inside this tank, it will automatically be pumped from the tank directly into the local sewers.

The Superstore developers found that this solution enabled them to maximise the number of parking spaces while also incorporating trees. They were able to save money upfront, as the water handling capability of the Silva Cell system allowed them to downsize water attenuation systems elsewhere on the site. Future savings as a result of reduced pavement repair needs are also expected.



Environmentally, this design will have a significant impact on its community. Shedding water into the Silva Cell system will permit regeneration of the water course. Slowing the water down will also have powerful effects downstream, helping to avoid flooding and non point-source pollution and thereby improving the quality of adjacent water bodies. The increased size and health of the trees in the car park, similarly, will improve the air quality, reduce heat-island effect, and create a more satisfying experience for Superstore shoppers.

**Installation Summary:**

Total bioretention soil: 94.92 m<sup>3</sup> (19.98 m<sup>3</sup> per tree, plus soil sharing)

Number of Silva Cells: 339 frames

Installation date: October 2010

Installation type: Large trees and stormwater management

Watershed area: 799.36 m<sup>2</sup>

Water storage: 19.98 m<sup>3</sup>

Project designers: Ihc & HTS

Council: New Forest District Council

**For more information, please contact:**

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