Dubai Silicon Oasis Implements Sustainable Measures to Address Flooding Concerns

CASE STUDY

Project
Dubai Silicon Oasis

Client
Dubai Silicon Oasis Authority (DSOA)

Products
Polystorm

Application
Detention

Innovative Polystorm detention solution improves the safety of both people and property in Dubai Silicon Oasis.

Dubai Silicon Oasis (DSO) is a technology park and free zone dedicated to fostering innovation and entrepreneurship. Established in 2004 to attract entrepreneurs and established businesses from around the world, DSO offers an integrated ecosystem consisting of state-of-the-art infrastructure, and access to world-class facilities. With its strategic location, modern infrastructure, and business-friendly policies, DSO has become one of the leading destinations for technology and innovation in the Middle East.

However, despite the meticulous planning and significant investment involved in constructing this city within a city, a crucial aspect was overlooked: the effective management of stormwater. As a result, DSO has faced recurring issues of severe flooding and related damage year after year due to the inadequate conventional drainage network, which was not designed to handle the high peak flows that occur during the rainy season. The overwhelming amount of water entering drainage systems in such a short space of time frequently caused them to overflow.

The repeated flooding highlighted the pressing need for a sustainable and effective solution to manage stormwater. Fortunately, Polypipe Middle East was well-equipped to tackle this challenge. As a manufacturer that consistently adheres to the CIRIA SuDS manual, our products and comprehensive water management solutions follow best practices for the planning, design, construction, operation, and maintenance of SuDS. This commitment to excellence has made us the preferred supplier for numerous residential and commercial projects, including Remraan and Dubai Industrial City. Drawing on our experience and expertise, we were able to develop a fit for purpose solution that specifically addressed the needs of DSO.

Tel: +971 (0) 4 518 3000
Email: middleeast@polypipe.com
www.polypipe.com/middleeast

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Working closely with lead consultant Khatib & Alami, and main contractor, Wade Adams Contracting LLC, we conceived and installed a specialised solution that seamlessly integrated within the existing water network. Our innovative detention solution, Polystorm, was used to effectively manage peak flows and mitigate flooding by creating an underground void that captures and collects rainwater. The tanks sit below hard surfaces, collecting and storing stormwater and surface water channelled from buildings' rainwater outlets and surface drains. Each tank is equipped with specific connection points to penstock, allowing for controlled water release into the existing drainage network at a more manageable rate to avoid flooding sewers.

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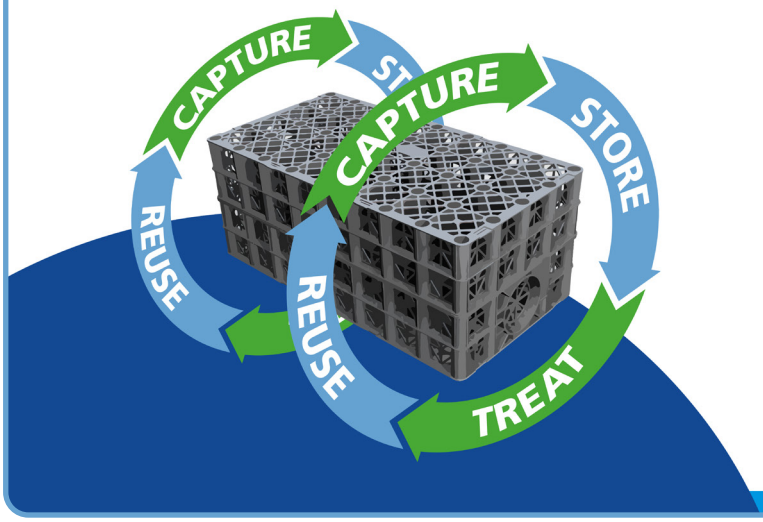
Why We Need Sustainable urban Drainage Systems (SuDS)

What are SuDS? An eco-friendly method which quickly drains water directly into underground networks, mimicking the natural water cycle. Our geocellular water management system, Polystorm, is an example of SuDS, designed to reduce flooding, improve water quality and water infiltration or detention.



SuDS can:

REDUCE FLOOD RISK

Polystorm captures water at the source where it falls, to significantly reduce the risk of flooding.

IMPROVE STORMWATER RUNOFF QUALITY

Polystorm mimics the natural water cycle, allowing water to percolate back into the earth rather than lying stagnant on the surface.

ENHANCE URBAN DESIGN WITH STORMWATER TREATMENT

Polystorm's versatile design enables it to be easily integrated into a variety of projects from light to heavily trafficked areas.

PROTECT NATURAL SYSTEMS

SuDS, like Polystorm, reduce water wastage by reusing harnessed water for irrigation in comparison to drop irrigation.

The lightweight and durable design of Polystorm tanks makes them easy to install, and ideal for use under heavily trafficked roads. Each cell has a 95% void ratio for maximum water capture and retention, capable of reducing flood risk in urban areas by up to 80%. Additionally, Polystorm meets industry standards and can overcome floatation from the site's high-water table.

Ultimately, Polypipe Middle East was able to deliver a reliable, compliant and spec-driven solution backed by technical expertise and outstanding customer service, contributing to the development of a safer, more sustainable community at Dubai Silicon Oasis.

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