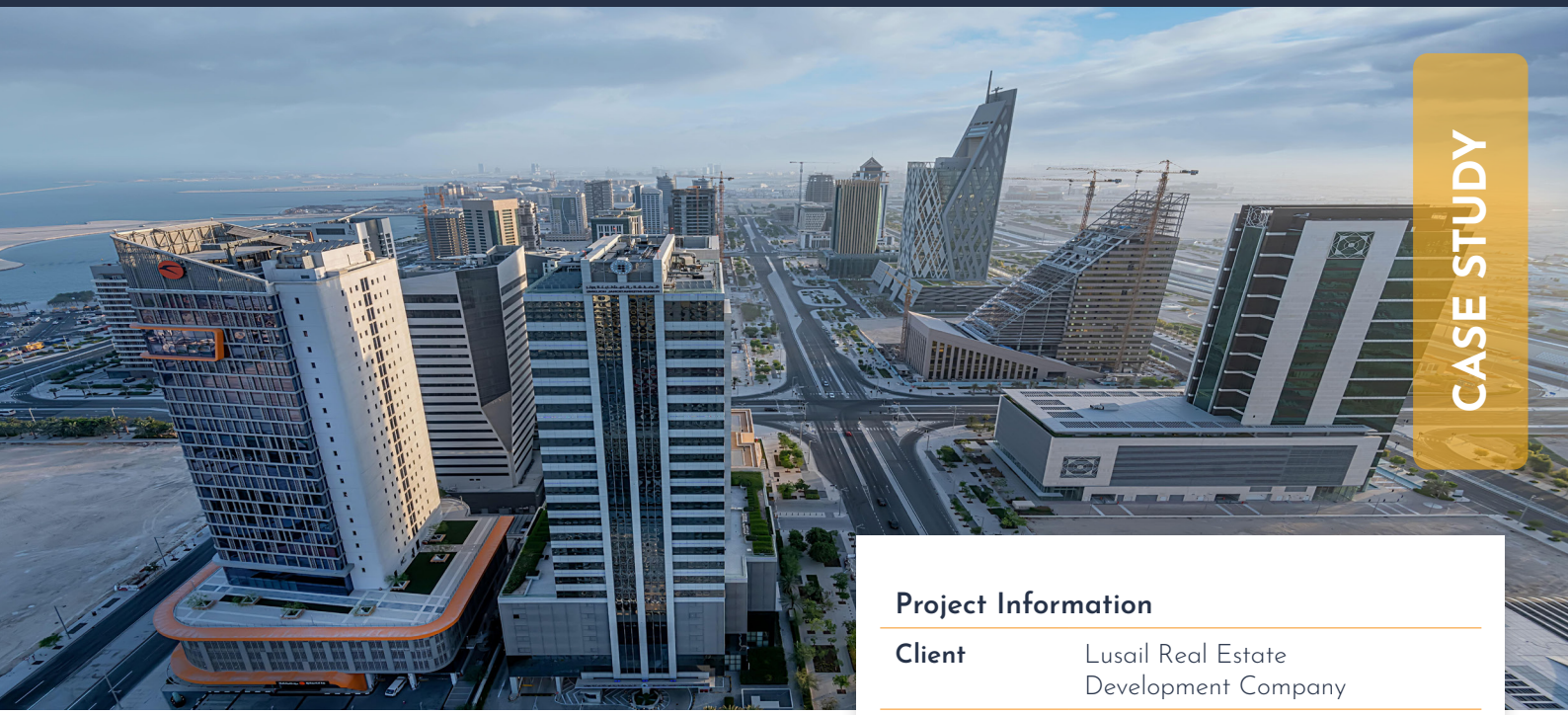
Capillary Break & Root Barrier

Salt & Tree Root Barriers, Commercial Boulevard, Qatar



CASE STUDY

Project Information

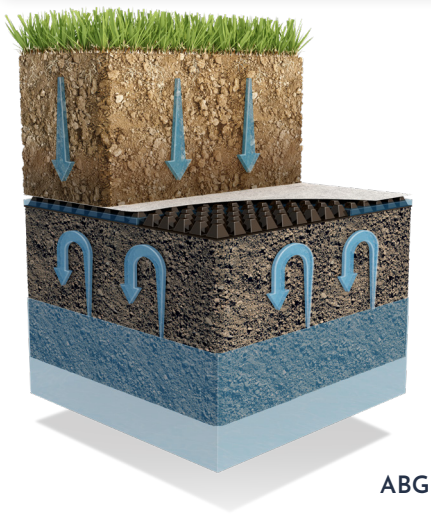
Client	Lusail Real Estate Development Company
Contractor	Landworx Trading & Contracting W.L.L.
Distributor	Burden World Trading W.L.L.
Products	ABG Salt Break Rootline - ribbed Terrex NW15
Quantity	45,000 m^2
Benefits	• Protection of tree roots against saline groundwater • Multi-directional water flow • Root barrier to prevent damage to pavement structure

Project Description

Lusail, a completely new mixed-use city development to the north of Doha, features a large main boulevard at its heart that provides an impressive gateway into the city. As one of the flagship stadia at the 2022 World Cup, Lusail was also a key destination during Qatar's hosting of the world's largest sporting event. As part of the extensive landscaping plans, the main Commercial Boulevard avenue is lined with a wide variety of trees and planting to provide green amenity spaces. Once fully established the planting will play an important role in helping to absorb CO_2 and provide urban cooling in the city during the extreme summer temperatures.

The Challenge

With an average annual rainfall of just 80mm, Lusail's tree lined routes and park areas need to be supported by a sub-surface root watering system. The Arabian Gulf location means a solution was required to provide a salt barrier / break layer to line the base and sides of the tree pits since the saline groundwater table is relatively close to the surface. Capillary action readily brings dissolved salts near to the surface of the ground, and since most vegetation is intolerant of even slightly saline water (3-6 g/litre), the plant roots die as a result. As part of the landscape design, a geosynthetic root barrier was also required to line the excavated tree pits and prevent roots from damaging the surrounding pavement structure.



ABG Salt Break

ABG LTD

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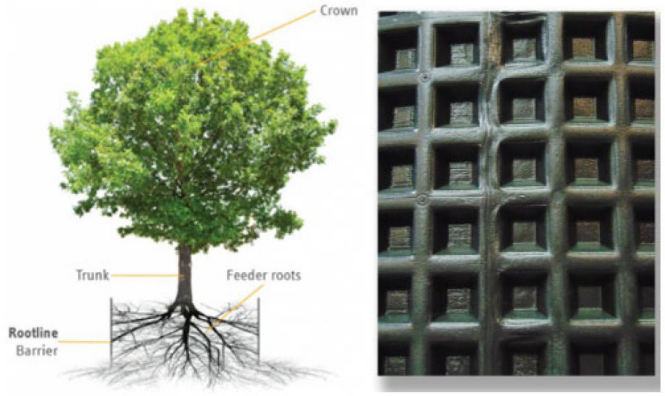
The Solution

The soil and pavement are supported by a modular polypropylene system (supplied by others) to provide structural void space and uncompacted soil volume beneath the pavement. ABG's **Salt Break** geocomposite was specified and installed to line the base and sides of the structural tree pit system to protect the roots against saline groundwater rise. The **Salt Break** layer comprises a single-cuspated drainage core with good long-term compressive strength and a very high in-plane flow capacity. The upper geotextile allows water to freely enter the core, but prevents intrusion of soil.

ABG's ribbed **Rootline** root barrier layer was wrapped directly around the outside of the tree pit support system (inside of the salt barrier layer), consisting of an impermeable, pocketed high density polyethylene (HDPE) sheet to provide a robust layer against root spread and penetration. To complete the installation **Terrex NW15** non-woven geotextile was used to wrap the completed excavation.

The ABG Service

Specification advice was provided to our Middle East distribution partners Burden World Trading W.L.L.



Rootline with ribbed lining installed to the outside of the tree pit to deflect and contain roots

Rootline being wrapped directly around the structural tree pit modules

Tree-lined walkways in Lusail

Salt Break barrier lines the soil containment modules as part of the sub-surface irrigation system

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