

Attenuation Pond Lining Solution for Lidl Bottling Plant

Foston, Derbyshire



TYPE OF PROJECT
**Waterproofing Of
Reservoirs, Lakes And
Channels**

YEAR OF CONSTRUCTION
2022

CLIENT
Lidl Supermarkets

CONTRACTOR
AFS Earthmoving

DESIGNER
AFS Earthmoving

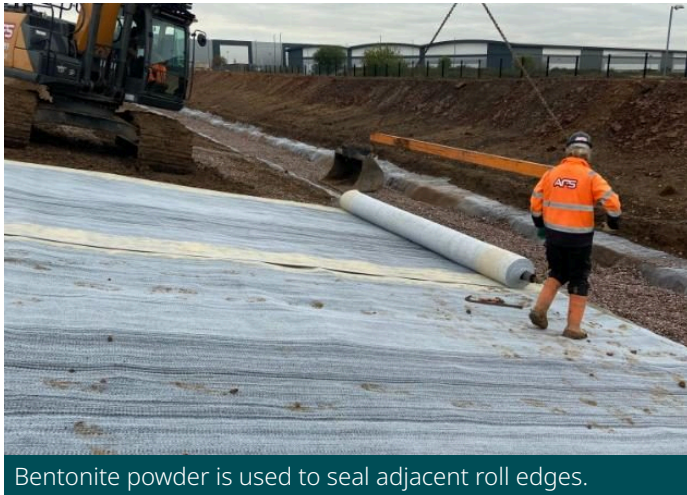
PROD. RELATED
GCL (2250m2)

Challenge

During the construction of Lidl's £50 million water bottling plant at Dove Valley Park in Foston, Derbyshire, a critical infrastructure challenge emerged. The 540,000 sq ft development required the installation of a large attenuation pond to manage surface water drainage across the site.

However, the proposed pond location consisted of highly permeable sandy ground. This created a significant risk of water seepage, as surface water stored in the attenuation pond could easily infiltrate the subsoil and leach into the underlying aquifer. This was particularly concerning because the same aquifer was being utilised as a water source for the bottling facility.

To ensure environmental protection and regulatory compliance, it was essential to implement a reliable pond lining system that would provide effective impermeability. The solution needed to prevent groundwater contamination, maintain water storage efficiency, and be suitable for the challenging ground conditions while supporting sustainable construction practices.



Solution

Maccaferri provided a high-performance attenuation pond lining solution using its Macline GCL W20 geosynthetic clay liner. This solution was selected by AFS Earthmoving Ltd in July 2022 due to its proven effectiveness in pond lining and containment applications.

A total of 2,250m² of Macline GCL W20 was supplied and installed in August 2022, delivering a fast and efficient installation process compared to traditional clay lining methods.

Macline GCL W20 is a reinforced geosynthetic clay liner (GCL) composed of natural sodium bentonite encapsulated between woven and non-woven geotextiles. When hydrated, the bentonite expands to form a highly impermeable barrier, effectively preventing water migration into the surrounding soil and protecting the aquifer.

This geosynthetic lining solution offers a more sustainable alternative to conventional puddle clay, significantly reducing the need for imported materials and lowering the overall carbon footprint of the project. Its flexibility also allows seamless integration around structural elements such as concrete headwalls, where the liner can be layered and sealed with bentonite granules to maintain a continuous waterproof barrier.

In addition to its low permeability, Macline GCL W20 provides excellent durability and performance. It is self-sealing in the event of minor punctures, offers strong slope stability, and demonstrates high resistance to chemical exposure and varying climatic conditions.

By implementing this advanced geosynthetic clay liner system, the project successfully achieved a robust, environmentally secure, and cost-effective attenuation pond lining solution, ensuring long-term protection of the water resource and reliable site drainage performance.



Macline GCL placed in drain trench to seal under filter drain.



OPEN GOOGLE MAPS



OPEN GOOGLE EARTH