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Erskine Park

Project Location
Sydney, NSW, Australia

Atlantis Application

On-Site Stormwater Detention

Project Overview

A major milk production facility at Erskine Park required an on-site detention tank within a site where available space for the stormwater infrastructure was restricted. The project, managed by George Rydell Constructions for Murray Goulbourn, required a high-volume underground detention system that could be accommodated within the available tank area.

The installed system provided 1,000 m³ (35,314 ft³) of detention volume. Atlantis specified Penta Tanks to achieve the required water storage volume within the restricted area, with the modules assembled on site and installed using geotextile and an impermeable liner.

Technical Summary

Project	Erskine Park On-Site Detention Tank
Location	Sydney, NSW, Australia
Application	On-Site Stormwater Detention
Completion	June 2014
Size	1,000 m³ (35,314 ft³)
Surface Use	--
Atlantis System	Flo-Tank® Penta

Design Challenge

The primary engineering constraint was the restricted space available for the detention tank within the milk production facility. The project required a substantial 1,000 m³ detention volume, making the relationship between available footprint and required storage capacity central to the system configuration.

The underground tank therefore needed to maximise water storage within the available area. This spatial requirement influenced the selection of the Penta configuration, which was specified to provide greater water volume while requiring less area.

01 Provide an on-site detention tank for the milk production facility.

02 Achieve an installation volume of 1,000 m³ (35,314 ft³).

03 Accommodate the detention system within the restricted space available at the facility.

04 Use a tank configuration capable of providing the required water volume within a reduced area.

05 Incorporate geotextile and an impermeable liner within the underground tank installation.

Solution

Atlantis specified Penta Tanks for the 1,000 m³ detention system because the configuration required less area for a greater volume of water. The Penta modules were assembled on site before being incorporated into the underground tank installation.

The Penta configuration has a stated module height of 2,170 mm, width of 408 mm and length of 685 mm, with a module footprint of 0.2795 m² and water storage of 576.10 litres per module.

The detention tank was installed with geotextile and an impermeable liner. The construction sequence also incorporated a compacted roadbase, washed river sand backfill and subsequent compaction of the backfill and top base sand.

Benefits

- 1,000 m³ (35,314 ft³) of on-site detention volume provided for the milk production facility.
- Penta Tank configuration selected to provide greater water volume within the restricted tank area.
- 2,170 mm-high Penta modules used to concentrate storage vertically within the available footprint.
- Each Penta module provided 576.10 litres of water storage within a 0.2795 m² footprint.
- Impermeable liner and geotextile incorporated into the detention tank installation.

Considerations

A layer of roadbase was laid and compacted using a compactor roller before installation of the tank system. An impermeable liner was then laid within the prepared area.

The Penta Tank modules were assembled on site and delivered into the excavated area. The tank was installed with geotextile and the impermeable liner, and all sides were backfilled with washed river sand. The backfill sand was compacted using a Wacker Packer, followed by compaction of the top base sand.

Project Outcomes

- 1,000 m³ (35,314 ft³) of on-site detention volume installed at the Erskine Park facility.
- Penta Tank configuration used to accommodate the required storage within the restricted tank area.
- Penta modules assembled on site before installation.
- Geotextile and an impermeable liner incorporated into the underground detention tank.
- Tank sides backfilled with washed river sand.
- Roadbase, backfill sand and top base sand incorporated into the documented compaction sequence.

The principal design relationship was between the 1,000 m³ detention requirement and the restricted area available for the tank. The Penta configuration concentrated 576.10 litres of storage within a 0.2795 m² module footprint, allowing the required detention volume to be configured using modules 2,170 mm high while addressing the project's stated spatial constraint.

Did You Know?

Each Penta Tank module has a stated height of 2,170 mm and provides 576.10 litres of water storage within a footprint of 0.2795 m².






WOLFFS







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Thank You For Your Attention



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