

Atlantis®
GREEN CITIES FOR LIFE

City of Playford

Project Location

South Australia, Australia

Atlantis Application

On-Site Stormwater Detention

Project Overview

AThe City of Playford incorporated an underground stormwater detention system as part of a new park within the Northern CBD Development. The park was intended to accommodate social events and concerts, while the stormwater infrastructure was required to address localised flooding at the site.

The project required a 550 m³ offline detention storage system. When downstream pipe capacity is exceeded, stormwater backflows into the tank for temporary storage. The system had to accommodate only 300 mm of backfill, a W80 wheel load, an L-shaped tank geometry, and compliance with AS1170. The Atlantis Titan Tank® was selected for the installation.

Technical Summary

Project	City of Playford
Location	South Australia, Australia
Application	On-Site Stormwater Detention
Completion	March 2017
Size	550 m³
Surface Use	--
Atlantis System	Titan Tank®

Design Challenge

The stormwater system was required to address localised flooding through an offline detention arrangement. When the capacity of the downstream pipe network was exceeded, stormwater needed to backflow into the underground system, requiring 550 m³ of detention storage within the project site.

Three constraints governed the tank design: 300 mm of backfill, a 550 m³ storage requirement and W80 wheel loading. The tank also required an L-shaped configuration and compliance with AS1170. The combination of shallow cover and high dynamic loading prevented the use of the traditional underground drainage systems considered for the project, while the required geometry made a concrete tank more expensive.

01 Provide 550 m³ of offline stormwater detention storage.

02 Address localised flooding by receiving stormwater when downstream pipe capacity is exceeded.

03 Accommodate only 300 mm of backfill above the underground system.

04 Accommodate a W80 wheel load.

05 Accommodate a W80 wheel load.

06 Comply with AS1170.

Solution

The Atlantis Titan Tank® was selected to provide the required 550 m³ offline detention storage while addressing the project's shallow backfill, dynamic loading and geometric constraints. The system had a stated compressive strength of 83.08 t/m².

The Titan Tank® was constructed from stacks of 52 mm heavy-duty panels, with restraints controlling both horizontal and vertical movement between the panels. The tank was enclosed and sealed with a waterproof membrane, forming the contained underground detention system required for the offline storage application.

This configuration enabled the detention tank to accommodate the required L-shaped geometry, while its stated compressive strength addressed the high dynamic loading requirement associated with the W80 wheel load.

Benefits

- 550 m³ of offline detention storage provided to address localised flooding.
- System configured to receive stormwater when downstream pipe capacity is exceeded.
- 300 mm backfill constraint accommodated within the underground tank design.
- W80 wheel loading incorporated as a project design requirement.
- 83.08 t/m² stated compressive strength provided by the Titan® Tank.
- Modular panel construction accommodated the required L-shaped tank geometry.

Considerations

The Titan Tank® was constructed using stacks of 52 mm heavy-duty panels, with restraints incorporated for both horizontal and vertical movement between panels. The completed tank structure was enclosed and sealed by a waterproof membrane.

The installation had to accommodate a particularly shallow 300 mm backfill depth while satisfying the specified W80 wheel loading and AS1170 compliance requirement. The L-shaped configuration was also a defining geometric constraint for the underground tank.

Project Outcomes

- 550 m³ of offline stormwater detention storage incorporated into the Northern CBD Development.
- Detention system configured to receive stormwater when downstream pipe capacity is exceeded.
- Underground tank designed around a 300 mm backfill constraint.
- W80 wheel loading incorporated into the tank design requirements.
- L-shaped tank geometry accommodated using the Titan Tank® system.
- Tank constructed from 52 mm heavy-duty panels and enclosed within a waterproof membrane.

The defining engineering challenge was the combination of high storage volume, shallow cover, high dynamic loading and non-rectangular geometry. The Titan Tank® provided the required 550 m³ offline detention volume within an L-shaped configuration while accommodating only 300 mm of backfill and a W80 wheel load, with a stated compressive strength of 83.08 t/m².

Did You Know?

The 550 m³ Titan Tank® was designed with only 300 mm of backfill while accommodating a W80 wheel load and an L-shaped tank configuration.














AUSVAC


JCB



Atlantis®
GREEN CITIES FOR LIFE

Thank You For Your Attention



Contact Us

Phone Number:
+61 (2) 9417 8344

Website:
www.atlantiscorporation.com.au

Email Address:
info@atlantiscorp.com.au