

Atlantis®
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Sydney Observatory

Project Location

Observatory Hill, Sydney, NSW, Australia

Atlantis Application

Permeable Surface

Project Overview

The existing pathways at Sydney Observatory were constructed with loose decomposed granite and had deteriorated under high pedestrian traffic, rainfall and the site's sloping conditions. The surface had become worn and uneven, while loose granite was progressively displaced downslope during rainfall events.

The replacement pavement combined Atlantis Gravel Cell® with a StoneSet resin-bound aggregate surface. More than 1,000 m² was installed to provide a permeable, stabilised pathway while retaining a surface appearance compatible with the heritage character of the Observatory.

Technical Summary

Project	Sydney Observatory
Location	Observatory Hill, Sydney, NSW
Application	Permeable Surface
Completion	September 2017
Size	Over 1,000 m²
Surface Use	Pedestrian Pathways & Vehicle Access
Atlantis System	Gravel Cell®

Design Challenge

The pathway replacement needed to address deterioration of the existing loose granite surface while maintaining the heritage character of the site. The sloping terrain, rainfall exposure, pedestrian traffic and occasional vehicle movements required a more stable pavement configuration without introducing an impermeable surface.

01 Replace worn and uneven decomposed-granite pathways.

02 Stabilise the pathway surface against aggregate displacement on the sloping site.

03 Address washout caused by rainfall and existing surface runoff.

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05 Provide a firm surface suitable for pedestrian accessibility and vehicle movements.

06 Retain a finish compatible with the existing red granite, sandstone features and heritage character of the site.

Solution

The replacement pathway was constructed using Atlantis Gravel Cell® as the cellular sub-base beneath a StoneSet resin-bound aggregate surface.

The Gravel Cell® layer was filled with 10 mm gravel, while the finished StoneSet surface incorporated permeable 6 mm aggregate bound with polyurethane resin. The pavement was installed over a well-compacted road base, with the documented StoneSet and Gravel Cell® build-up requiring a depth of approximately 75 mm.

A Coral and Cream aggregate blend was selected for the finished surface to reproduce the traditional red character of the previous pathway while coordinating with the site's sandstone features.

Benefits

- Permeable replacement for the existing loose granite pathways.
- Permeable StoneSet surface incorporating 6 mm aggregate.
- Resin-bound surface prevented loose aggregate from washing downslope during rainfall.
- Surface resisted displacement associated with turning vehicle tyres.
- Previous pooling and runoff issues addressed through the permeable pavement configuration.
- Approximately 75 mm pavement build-up reduced the depth of intervention required.
- Existing heritage brick pavers remained in place.
- Over 1,000 m² of pathway reconstructed.

Considerations

The documented pavement configuration combined a well-compacted road base with Atlantis Gravel Cell® filled with 10 mm gravel and a permeable StoneSet surface using 6 mm aggregate.

The approximately 75 mm construction depth reduced disturbance to the existing grounds and enabled the pathway replacement to proceed with limited interruption to site opening times. Existing heritage brick pavers were retained as part of the works.

Surface colour was also a project consideration. A Coral and Cream aggregate blend was selected to maintain the red appearance of the previous loose-granite pathways while integrating with the surrounding sandstone architecture.

Project Outcomes

- Over 1,000 m² of Atlantis Gravel Cell® and StoneSet pavement installed.
- Existing loose decomposed-granite pathways replaced with a stabilised permeable surface.
- Gravel Cell® filled with 10 mm gravel beneath the finished pavement.
- 6 mm permeable StoneSet aggregate used at the surface.
- Rainfall-related washout, pooling and runoff issues addressed.
- Aggregate movement under turning vehicle tyres eliminated through the resin-bound surface.
- Approximately 75 mm pavement build-up installed over compacted road base.
- Existing heritage brick pavers retained.
- Coral and Cream aggregate blend used to coordinate with the site's existing red granite character and sandstone features.
- Installation completed with limited disruption to the Observatory grounds and opening times.

The completed pathway combined a stabilised permeable surface with a cellular gravel sub-base, addressing the surface instability and rainfall-related deterioration documented in the previous loose-granite pavement.

Did You Know?

The replacement pavement required a documented construction depth of only approximately 75 mm over the compacted road base.

The Gravel Cell® and StoneSet configuration provided a permeable replacement for the existing pathways while limiting disturbance to the Observatory grounds. The reduced intervention also allowed existing heritage brick pavers to remain in place.











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Thank You For Your Attention



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