Erosion study summary
Winmalee Wastewater System Improvement Project

The Winmalee Wastewater System Improvement Project will ensure the wastewater system in the Blue Mountains continues to operate efficiently and safely.

About the project

The Blue Mountains Sewer Tunnel is an important part of the wastewater network in the Blue Mountains. It is 39 km long, and transports wastewater from North Katoomba and other towns in the mountains to the Winmalee Wastewater Treatment Plant (WWTP).

There are sections of the tunnel joined by vertical shafts, called drop shafts that allow the tunnel to follow the steep contours of the land.

During heavy rain, stormwater enters the wastewater system, increasing the flows by up to 20 times. The drop shafts at Lugano Avenue and Lawson Road in Springwood are currently not big enough to cope with the large volumes of dilute wastewater during large storms.

The high flows cause pressure to build up in the drop shafts. Over time, this increases the risk of the drop shafts weakening and potentially failing.

The drop shafts have not had structural problems yet, but if they did, it could result in:

- damage to neighbouring properties and public land
- potential risks to public safety and public health
- the uncontrolled flow of large volumes of untreated dilute wastewater into the environment and properties.

Repairing the damage would take a lot of time, and would be disruptive and costly.

The preferred solution

Sydney Water has identified a preferred solution to address the problem that involves:

- building a new, larger drop shaft at Lugano Avenue
- linking the Lawson Road drop shaft to an existing tunnel access shaft, that is next to the drop shaft. During very wet weather, the access shaft will act as a second drop shaft, allowing all flows to be contained within the system
- making small structural modifications to increase the capacity of the pipelines at the Winmalee WWTP.

To know more about the preferred solution for the project, please visit sydneywater.com.au/majorprojects.
The erosion study

In late 2011, Sydney Water engaged consultants, Cardno Pty Ltd, to do an assessment on potential erosion impacts of the preferred option, called a geomorphology study. Previous studies on erosion were much less thorough, and were based on a desktop assessment only. No detailed site assessments or soil samples were done. The Cardno study was very detailed and based on international best practice. The assessment included:

- site surveys and soil sampling
- detailed modelling work to predict the impacts for both 10 year Average Recurrence Interval (ARI) event and 100 year ARI event
- recommendations on ways to reduce any erosion impacts
- remodelling – to test whether erosion reduction measures would work.

Figure 1.1: The study process

Key findings

Cardno recommended that Sydney Water plan for a 10 year ARI, 48 hour event, as an industry standard. These events are generally used by other state Departments and similar projects. The study’s key findings are that:

- the WWTP currently impacts the creek during wet weather
- the preferred solution would not cause further impacts to the creek in a 10 year ARI event
- the preferred solution may have some impact to the creek during a 100 year ARI event.

What is an ARI event?

An ARI event, for example, of 100 years does not mean that the event will only happen once every 100 years. It means there is a one per cent chance (a one in 100 chance) that the event will happen in any given year.
Next steps

Sydney Water has set up a separate project to consider the report’s findings and recommendations. Sydney Water is talking to downstream property owners about the report findings and recommendations, and will continue to monitor the impacts of extremely wet weather on the creek.

In the coming months, Sydney Water will do an environmental impact assessment for the preferred solution and this study will form an important part of this.

To know more

To know more about the preferred solution, the project or to provide us with feedback

Call: The Community Relations Team on 1800 064 127
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