PROJECT NAME

Looking Glass Bay Park Stormwater Treatment System

RESPONSIBLE COUNCIL: Ryde

CONSTRUCTION DATE: 2010

LOCATION: The park is located at the end of Amiens Street, Gladesville.

SUB-CATCHMENT: Gladesville

Basin and mulched slope at the bottom of Amiens Street

Headwall and junction pit (centre) of existing and new stormwater pipes

Overview

Looking Glass Bay Park is a 2.1 hectare remnant of bushland on the Parramatta River foreshore. The area provides valuable habitat for native flora and fauna. The sandy soils in the park are still natural and this is one of only a few remaining bay heads in the area that have not been "filled". Stormwater from the surrounding residential area and roads flowed down Amiens Street (a steep hill) and directly into the park. This project constructed a system in the park to capture the stormwater runoff, allowing it to slowly absorb into the soil, filtering out nutrients and replicating a more natural flow of water during rainfall events.

Objectives

The driver for this project was council's existing plan to rehabilitate the highly degraded creek line flowing through the park. Just downstream of the park is an area of coastal saltmarsh (an endangered ecological community) that was also threatened by the high volume and pollutants in the stormwater. The additional funding from the NSW Environmental Trust grant provided an opportunity to enhance the creek rehabilitation project and build in some principles of Water Sensitive Urban Design and stormwater treatment.

By capturing and treating the stormwater, the objectives were to:

- Reduce the volume and velocity of stormwater flowing into the bushland area and the Parramatta River.
- Contribute to the water quality improvements (by reducing stormwater and filtering pollutants that would have otherwise flowed into the River).

Approach

A basin was constructed at the end of Amiens Street, which is at the bottom of a steep hill. The existing stormwater drainage pipe was extended down to the basin. The mulched slope helps to direct the overland flow of water into the basin.

At the end of the basin there is a headwall of stacked rocks and a rock-lined channel to dissipate the flow of water and prevent soil erosion.

During heavy rainfall, excess water is able to pond in the basin and slowly filter through the sandy soil. The native vegetation planted in the basin also assists in filtering the water and absorbing nutrients.

Some educational signs have been installed in the park to explain the stormwater treatment system and increase public awareness about some components of Water Sensitive Urban Design.

Stormwater pipe into sedimentation basin

Rock lined inlet to leaf collection pit on Denman Avenue

Lessons learnt

The system was constructed in an environmentally sensitive natural area that required minimal disturbance of the soil and native vegetation. Working on a steep slope and within a small space presented challenges for using construction machinery and equipment.

Results & Outcomes

- This system successfully captures most of the stormwater that was previously draining directly into the Parramatta River.
- Water quality modeling of the system predicts that it is capable of significantly reducing water pollutants flowing into the River: a 57% reduction of Nitrogen, a 74% reduction of Phosphorus and an 85% reduction of Total Suspended Solids (inorganic particles suspended in the water).
- This system was constructed with very little disturbance to the natural area within the park. No large trees were removed, and the construction of the basin carefully worked around the existing trees at the site.
- Some native vegetation was planted in and around the basin after construction. The native trees, once grown, will stabilise the edges of the basin.

For supplementary technical information about this project go to www.parramattariver.org.au

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Parramatta River Catchment Group

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