

## Success factors for preventing and managing sediment loss

Eighty per cent of building sites in the City of Subiaco are estimated to be compliant with the City's regulations and conditions for preventing and managing soil erosion, surface run-off, sand drift and dust. This is due to:

1. The development of guidelines and protection bonds to prevent sedimentation resulting from urban development.
2. Investment in infrastructure to ensure the removal of gross sediment with the aim of minimising the impact on the aquatic environment, and to reduce costs.
3. Communicating the benefits for builders and land developers of controlling erosion and sediment loss.
4. Working to improve the habitat quality of wetlands by at source management of pollutants as part of the City's Wildlife Enhancement Plan 2014–2019.
5. A commitment to collect data to better understand the impacts of sedimentation in order to investigate new ways of mitigating sedimentation from urban development.



Soil, sand and cement travels into the stormwater drainage system and can pollute local parks and sensitive environments such as rivers, wetlands and the ocean.



## A Gross Pollutant Trap tackles 12 tonnes of sediment annually

In 2017, the City of Subiaco was forced to undertake a clean-up of Mabel Talbot Lake in Jolimont. Sediment forming at the bottom of the lake was threatening the health of the lake and impeding water flow. Seven tonnes of sediment was removed from the lake during this manual clean-up, at a cost of over \$36,000.

The installation of a Gross Pollutant Trap (GPT) allows the removal of three tonnes of undesirable material four times a year without creating disturbance to the lake.

Without the GPT, the City would have to continue to undertake a recurring manual clean out of the lake. This manual operation requires a team of three people over five days, and is not only a costly operation, it also does not allow some materials such as oil, fuel, micro particulates or even litter to be thoroughly removed as effectively as the GPT.

The initial GPT installation cost was \$162,000.

From September 2019, audits of the GPT will be organised on a regular and seasonal basis to collect data that will help better understand and control sediment volume and movement throughout the City.

This data will help demonstrate the benefits of installing GPTs as a remediation tool.



Mabel Talbot lake sediment build-up – March 2013.



## Implementing proactive solutions

While the installation of GPTs can assist in the removal of sedimentation resulting from urban development in a way that minimises the impact on the environment, the City of Subiaco recognises that it is important to prevent sediment loss at source to address this significant issue.

The City is implementing proactive solutions to prevent sedimentation from urban development. These include:

- the development of the Sand Drift Prevention and Sediment Control Guidelines for Building Sites and the Infrastructure and Verge Protection Bonds.
- encouraging and communicating best practice erosion and sediment control methods and technologies.
- a commitment to collect data to better understand what management tools and options the City could utilise.

The City's guidelines and protection bonds specify obligations, relevant legislation and practical sediment control and sand drift prevention measures. The guidelines and bond are for use on building and construction sites to achieve compliance with the *Environmental Protection (Unauthorised Discharges) Regulations 2004* and the *Local Government Act 1995*.

For example, sediment control fences should be installed on all construction sites to the required design specifications.

Subdivision plans must include the locations of sediment control fences to prevent sediment runoff into drains.



*Incorrect installation of erosion and sediment control treatments and/or a lack of maintenance can increase erosion and sediment loss.*



*By failing to incorporate sediment control into the site management plan, sand is able to move onto streets and into stormwater systems.*

## Guidelines for building sites

In 2014, the City of Subiaco developed its Sand Drift Prevention and Sediment Control Guidelines for Building Sites, which state that it is the responsibility of property owners and land developers to control sediment from building sites.

The guidelines were developed in response to the City's understanding of the negative impacts of sediment from building sites in drains and waterways, namely:

- Reduced capacity of the stormwater system due to blocked drains, and reduced size of stormwater collection basins which can lead to localised flooding.
- Nutrient enrichment and eutrophication of rivers and wetlands, which can deplete the water of oxygen, and lead to excessive growth of algae and sediment smothering reeds, plants and/or seagrasses.
- Harm to fish and other aquatic life and their environment.
- Altered channel flow of waterways.
- Sand drift resulting in dust which can become a nuisance to neighbouring properties.
- Slip hazards on paths.
- Increased maintenance costs.
- Considerable costs to remediate the impacts of sediment drift.

## Communicating the benefits to builders

Throughout the building application process the City of Subiaco informs builders and land developers of the on-site benefits resulting from adopting appropriate sediment control measures, including cost savings from reduced stockpile losses, reduced clean-up costs, improved occupational health and safety outcomes and fewer complaints from the public.



*This drain flows into a nearby wetland.*

## Infrastructure and Verge Protection Bond

Since 2017, the City has applied Infrastructure and Verge Protection Bonds to all land development sites in order to ensure the city's assets are not damaged as a result of private development and construction.

Builders and land developers operating in the City of Subiaco are required to pay a Development Site Bond for Infrastructure and Verge Protection to ensure the protection of the City's infrastructure and verge landscapes. The bond also serves as a mechanism to prevent the migration of sediment onto road reserves and into drains from urban development activities. The migration of sediment onto the road reserve and into drains affect the amenity of the area and has a negative environmental impact on the City's waterways and parks.

The refundable bond for residential development is \$3000. All commercial developments are assessed individually with the final bond amount determined upon application. The City's standard residential bond is based on the surrounding asset replacement value, which includes, but is not limited to, roads, footpaths, kerbing, drainage infrastructure and street trees.

Pre-development images are taken of the site and adjacent surrounds and kept with the licence and development file. The bond is to be paid following approval and prior to the issue of a Building Licence/ Permit. After building works are complete, a Notice of Completion – BA7 and a Bond Refund Application must be submitted. Prior to releasing the Infrastructure and Verge Protection Bond, site inspections are undertaken to determine if damage has occurred as a result of the approved development works, and if there are any reinstatement requirements or unauthorised works that have been undertaken on Council land.

Significantly, one of the site inspection criteria is that all sediment must be contained within the boundary lines.

## Street sweeping and soak well audits will inform and improve best practice management regimes

An audit of all materials (builder's sand, other sediment, rubbish etc.) collected by the street sweepers and various soak wells across the City will also help map sediment movement and quantities, enabling the City to introduce new and innovative preventative solutions for controlling and managing sediment from urban development.



*Sediment flows from this construction site into Lake Jualbup.*



### Supporting biodiversity

Effective erosion and sediment control supports biodiversity and the conservation of native fauna habitat by improving the quality of local waterways.

This case study has been developed as part of the Sediment Task Force Project which is sponsored by:



Department of Biodiversity, Conservation and Attractions



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