Managing urban development to protect our local waterways

The extent of the problem

The Shire of Augusta Margaret River is well aware that construction work and ground disturbing activities can result in the transportation of sediments or pollutants from the land into receiving waterbodies or watercourses.

The Shire has experienced ongoing sediment and erosion issues at local construction sites, particularly where sites are steeply sloping, have been stripped of vegetation and have impermeable soils.

This causes clogging of drainage infrastructure, local flooding and the export of pollutants attached to sediments, particularly nutrients, and has resulted in significant negative impacts on aquatic fauna and flora due to the declining water quality of downstream receiving environments.

Despite existing educational programs and implementation of development conditions to manage this, transport of sediment into waterbodies or watercourses is still a concern to the Shire. Transport of soil, sediment and pollutants from construction sites is highly conspicuous, turning the river brown, and triggers community concern about impacts on the environment.

Sediments visible in Darch Brook at the Margaret River Confluence

The transport of soil, sediment and pollutants into the Margaret River has been identified as a large threat to the river's heath in the Margaret River Protection Strategy. A similar risk exists in relation to the Blackwood River and other waterbodies and watercourses within the Shire of Augusta Margaret River.

As a result, the Shire is endeavouring to continue to engage with and educate the construction industry to Improve management practices.

All images supplied by the Shire of Augusta Margaret River

Improvements to our existing management regime

For several years the Shire has been investigating ways to better manage sediment and erosion control on construction sites. Previous attempts to alter an existing nuisance Local Law with a clause relating to sediment management had been unsuccessful. A clear and specific Local Law with provisions for infringements was required.

In 2018, the Shire engaged a consultant with experience in this field to develop a range of tools to more effectively address the issues of sediment and erosion control and to protect the water quality of their unique waterways.

The first stage was the preparation of a scoping report to review the relevant legislation, policy, case studies and reports as they relate to the management of sediment during planning and development and to facilitate the development of a management toolbox. This report summarised the outcomes of consultation with other local governments in WA and interstate who have been successful in improving sediment management as part of the development process.

The sediment management toolbox included a suite of guidelines and documents, namely the *Erosion and Sediment Control Local Law 2019*, subdivision and development conditions, a *Building Information Sheet* , a *Subdivision and Development Information Sheet* and an *Enforcement Checklist* for subdivision and development sites that will be used to assist in recording the information required to issue fines and/or monitoring changes to the sites over time.

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

Perth NRM

CITY OF Armadale

GOVERNMENT OF WESTERN AUSTRALIA

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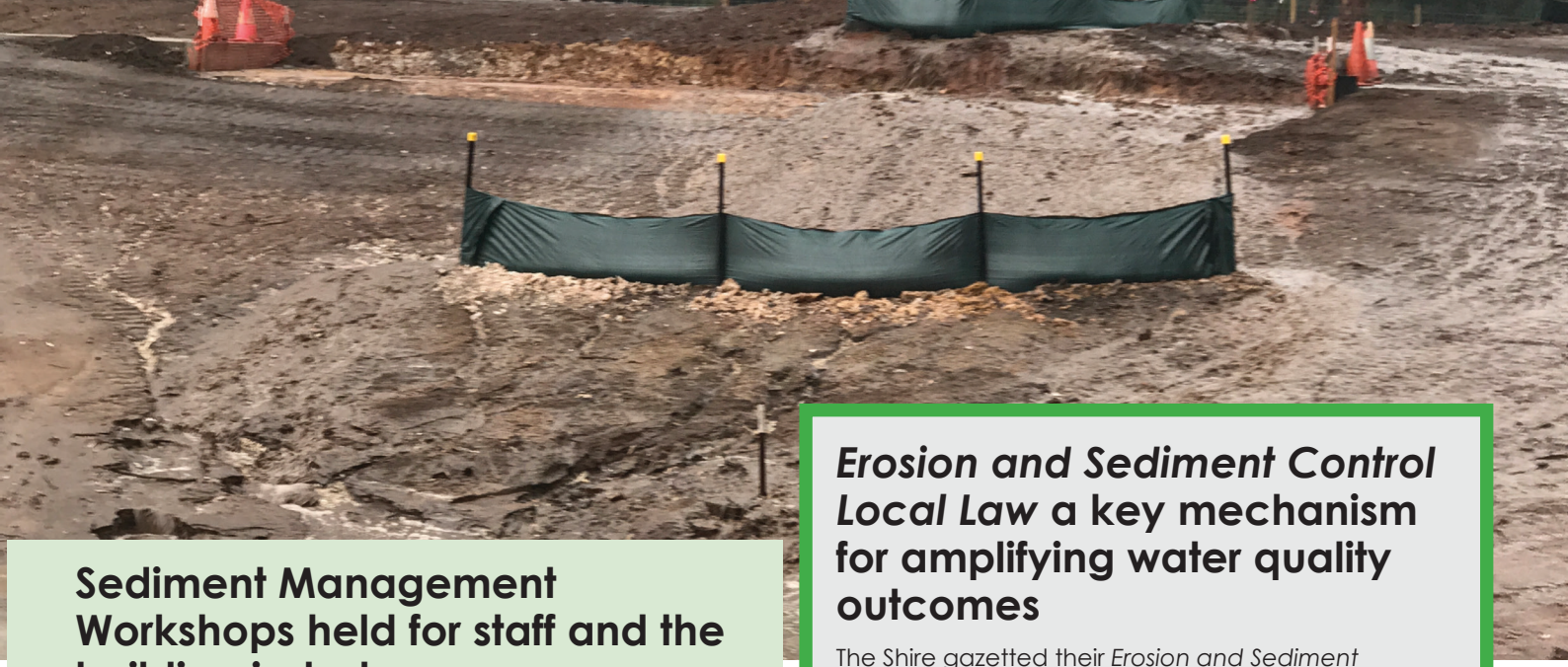
SWAN CANNING RIVERPARK



Sediment Management Workshops held for staff and the building industry

The Shire engaged a consultant to run two workshops; the first workshop was for Shire staff and introduced the proposed sediment control tool box, to ensure relevant staff were aware of the project and their roles in its implementation.

The second workshop was directed at the construction industry, particularly builders and developers, to introduce the project and the intention to apply the local law. This workshop was particularly useful and the proposed sediment control toolbox was well received by those in attendance. The workshop allowed for an exchange of information and feedback from participants. It was suggested that the Local Law would help to create an even playing field for all construction contractors when they are quoting for work.

Enforcement of ESC local law

The new *Erosion and Sediment Control Local Law 2019* was considered essential to facilitate behaviour change.

The Shire had spent a number of years politely asking builders and developers for better sediment management on-site. However, without some form of enforcement around non-compliance, there was little incentive to comply.

The Shire intends to use an infield assessment process to check development and building sites, and will issue an initial warning letter, followed by an infringement letter if the required action is not taken.

The Shire also intends to send out letters acknowledging those sites that do comply and have implemented good practice.

Enforcement Checklist

The Enforcement Checklist is a standard way of collecting information or evidence about what is occurring at the site that can be used to monitor change, or used as evidence to support issuing of an infringement and defending the matter in court, should this be required.

Erosion and Sediment Control Local Law a key mechanism for amplifying water quality outcomes

The Shire gazetted their *Erosion and Sediment Control Local Law* in 2019 with the aim of ensuring it can apply enforcement requirements on owners or occupiers of land who fail to adequately stabilise soil on land in order to prevent soil erosion or sedimentation.

The new Local Law will support environmental management programs that protect the local amenity and health of the Shire's waterways and waterbodies.

The *Erosion and Sediment Control Local Law 2019* has been prepared to require landowners, builders and developers to take reasonable measures to stabilise their land, and to prevent soil, sediment and pollutant from leaving the land or directly or indirectly entering waterbodies or watercourses.

Specifically, the new Local Law states that regarding the prevention of erosion and the escape of soil, sediment and pollutants:

An owner or occupier of land must take and maintain reasonable measures to

a. *stabilise soil on the land;*

b. *ensure no soil, sediment or pollutant is released from or escapes from the land, whether by means of erosion, ground disturbing activity or any other cause; and*

c. *ensure no soil, sediment or pollutant is released or deposited directly or indirectly into any water body or water course.*

Sediment fences are ineffective if not implemented correctly

Support for behaviour change

Sediment and erosion management in the Shire can be quite a challenge as the region experiences many large and heavy rainfall events on sloping and impermeable soils, and many builders and developers are not experienced in managing these conditions.

Whilst the new *Erosion and Sediment Control Local Law* will assist with compliance, it is apparent that there is a communication gap and the necessary information does not filter down to worksites.

Workshops held with local trade persons, builders and developers emphasised the need for more on-site education. Having all the stakeholders in a room created some interesting discussions around the challenges faced on construction sites.

A greater presence by the Shire was deemed necessary. Having an Officer visit sites to remind builders and land developers of the new requirements and to provide guidance on actions to prevent erosion and sediment loss is seen as beneficial.

The building and trades industries are a significant employer within the Shire and most employees live and work in the area and do not want to see the environment damaged as a result of their work.

However, it seems that the management of sediment is not currently front of mind for developers, builders and tradespersons when on site, who are in many cases unaware of the consequences of the cumulative impact created by sediment running off multiple urban development sites and into the river.

Simple things, such as building companies not including roof storm water connections in their building quote and leaving it up to the homeowner at the end of the build, are often resulting in significant erosion issues on site. This is something that can be addressed through better information sharing and controls.

Once better sediment controls become common practice at building sites, it is anticipated that an education program will no longer be needed. However, at present significant behaviour change is necessary and greater assistance is required for developers, builders and tradespersons to achieve this.

Subdivision and development conditions

Well-worded subdivision and development conditions are potentially effective in improving sediment management practices and may require the preparation of an erosion and sediment management plan.

Standard suggested conditions were included in the toolbox however, it is noted that the timing of the subdivision conditions can be problematic as implementation of the plan sometimes occurs after the approval to clear land is received.

The Shire's *Erosion and Sediment Control Local Law* provides an alternative mechanism to ensure sediment is retained on site.

Information Sheets for Building and Development sites

The Shire recognised that there was a need for more education for the construction industry. Many contractors were not aware of the extent of the problem, or lacked understanding of what is required at the construction site to ensure that they can comply with the intent of the local law.

To assist in this communication process, the Shire developed a *Sediment and Erosion Management - Building Information Sheet*, which provides guidance on the sediment control measures that should be used during subdivision and development works and building works.

This document can be viewed at the Shire's website (https://www.amrshire.wa.gov.au/services/building).

Determining economic implications

The value of healthy natural waterbodies and watercourses is difficult to measure in economic terms, but both the Margaret River and Blackwood River are both widely valued by the community and support tourism and subsequently the economy of the region.

The costs associated with removing sediment from detention basins and stormwater systems has not previously been separately recorded, but improved record keeping is underway, as this is a significant ongoing cost to the Shire and understanding the financial repercussions should provide further impetus to address this issue.

Stopping the sediment spread and protecting soil and waterways

Since the gazettal of their Erosion and Sediment Control Local Law in 2019, the Shire has been issuing sediment clean-up notices and $500 infringements for non-compliance.

Some builders and land developers have started to incorporate provisional sums into contracts to allow for proactive sediment control measures to be implemented, which represents a key shift in industry operations and a significant step towards standardisation of best practice.

Shire staff are also reporting a greater understanding and responsiveness from builders when improvement notices are issued.

Construction or altering of the elevation of the water table may disturb acid sulphate soils (ASS). This includes dredging sediment build up in wetlands or waterways, developments requiring significant depth and volume of excavation, or dewatering for construction activities. When disturbed or exposed to air, iron sulphides in ASS react to produce sulfuric acid. This acid can release heavy metals from the soil into the surrounding environment including waterways, and cause serious environmental harm or damage to infrastructure. The Shire's Erosion and Sediment Control Local Law is also instrumental to managing this environmental threat.

Our success factors for controlling erosion, sediment runoff, sand drift and dust from urban development

1. Inclusion of the transport of soil, sediment and pollutants into waterways as a significant threat to waterway heath in the Shire's River Protection Strategies.

2. Introduction of the Shire of Augusta Margaret River's *Erosion and Sediment Local Law 2019* which includes provision for infringements.

3. Recent development of a sediment and erosion control 'toolbox' to guide owners and occupiers of land on best practice sediment and pollutant management.

4. Ongoing commitment to continue to engage with and educate the construction industry to improve management practices, with an emphasis on behavioural change.

5. Commitment to put sediment management at the forefront of people's minds as a key part of the everyday activity at building and development sites.