



## **Borg Manufacturing - Stormwater Champion or Shrewd Operator?**

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Borg Manufacturing (Borgs) is one of the largest timber board manufacturers in the world. Their manufacturing plant in Oberon occupies 45Ha and is 50% impervious. Borgs commissioned Sustainability Workshop to help master plan their \$35M particle board expansion that will see another 10Ha of development, and an impervious area increase to 73%. Most of Oberon's industrial area and a significant amount of surrounding rural land also drains through the Borgs site.

The master planning of stormwater management at this scale required innovative approaches for (a) the design of water quality treatment system adhering to strict EPA licence limits, and (b) the reduction of runoff and water conservation benefit delivered by a large stormwater harvesting scheme.

The water quality limits on site are dictated by an Environmental Protection License (EPL), requiring compliance to maximum allowable concentrations (not loads) of pollutants. When modelling the proposed development in MUSIC, there was significant variation in the maximum concentrations resulting from each stochastic run. Low confidence in the predicted maximum discharge concentrations presented a significant dilemma. A robust alternative modelling approach was developed to create confidence. Calibrating the MUSIC model to measured water quality data was also undertaken. Methods and results will be shared and discussed.

Sustainability Workshop proposed large scale harvesting of stormwater and developed the business case to demonstrate how stormwater would provide a sustainable water source for the industrial operation whilst simultaneously protecting the receiving waterway from excessive flows. It was calculated that harvested stormwater could be recycled for \$0.14/kL (sic) by using an existing microfiltration/reverse osmosis treatment plant on-site. The existing plant which normally recycles the process wastewater back into the process had spare capacity. Moreover Borgs had been buying town water to dilute their RO filtrate so it would have a salinity level suitable for discharge to trade waste. While Borgs were initially reluctant to venture into stormwater harvesting and reuse, the business case was very convincing. Harvesting stormwater was shown to provide a low cost, low salt source of water to both use as feed water in the process and to also dilute highly saline filtrate when required.

With a predicted harvestable yield of around 120ML/year, Borgs would save approximately \$400,000 annually from harvesting and reuse, whilst reducing discharge to the environment by around 30% and saving an equivalent volume of potable water.

This project exemplifies sustainable development, delivering profit to the developer through protection of the environment.