

## Shoalhaven Reclaimed Water Management Scheme (REMS)

### Background

The first stage of the Shoalhaven Reclaimed Water Management Scheme (REMS) was designed and constructed in the late 1990s/early 2000s. This stage of the scheme (known as REMS1A) provided for a linkage between 4 sewage treatment plants and one of its primary purposes was to remove the discharge of effluent to Jervis Bay.

In the year 2000, Council and the then Minister for Land and Water Conservation, Richard Amery signed a Memorandum of Understanding (MOU) binding the parties to a funding arrangement for Stage 1 of REMS (which includes Stages 1A and 1B). The funding was approved under the State Government's Country Towns Water Supply and Sewerage Program. While the MOU outlined an agreed scope of works, the timing of such works would be flexible.

Stage 1B of the overall REMS Scheme is significant and includes the following project components:

- Major upgrades to Nowra and Bomaderry Sewage Treatment Plants
- A reclaimed water transfer main under Shoalhaven River connecting Bomaderry STP to Nowra STP (both STP's currently discharge effluent to the Shoalhaven River)
- A reclaimed water transfer main from Nowra STP to connect to the existing REMS distribution network.

A major driver of the Stage 1B works is the current non-compliance of the Nowra and Bomaderry STPs with the Environmental Protection Licences issued by the NSW EPA. Council has been working with the EPA through each stage of the REMS1B development. This has led to Council being issued with a Pollution Reduction Program (PRP) with milestones for compliance actions. In addition, development in the Nowra and Bomaderry catchments has been limited by the capacity of the sewage treatment plants.

### Scheme Development

An augmentation report for Stage 1B was prepared in 2013. The aims of the augmentation report were to nominate scheme parameters, investigate augmentation options and sufficiently develop the preferred option to enable detailed discussions with regulators and other key stakeholders.

A number of options were investigated and tested in regard to risk, practicality and cost.

Some options investigated were:

- Consolidation of treatment of all sewage from Nowra and Bomaderry at an augmented Bomaderry STP (ie decommission Nowra STP),
- Consolidate treatment of all sewage from Nowra and Bomaderry at an augmented Nowra STP (ie, decommission Bomaderry STP),
- Consolidate treatment of all sewage from Nowra and Bomaderry at an augmented Callala STP (ie, decommission Nowra and Bomaderry STP's),
- Upgrade Nowra and Bomaderry STP's in their current locations.

The draft Augmentation Report concluded the preferred option was to augment Nowra and Bomaderry STP's in their current locations with full tertiary treatment. A condition assessment was undertaken on the existing structures at both sites to determine if any could be retained for the augmented STP's.

The draft Augmentation Report along with a preliminary risk register was forwarded to key stakeholders, NSW Office of Water, EPA, NSW Health, DPI and a representative land manager for their review. A risk management workshop was held with these stakeholders in August 2013 to determine what further studies/investigations would be required. The main outcomes from this session identified the need for:

1. Water quality objective assessment (WQOA) to determine the impact (particularly on marine life, eg oyster growers) of future releases to the Shoalhaven River from Nowra and Bomaderry STP's.
2. The existing REMS STP's to comply with current reclaimed water quality standards (Australian Guidelines for Water Recycling) due to the fact that REMS 1A and 1B will be totally integrated (ie, no point of separation).
3. Negotiated milestones to be agreed for inclusion in the Pollution Reduction Program

In December 2013 a Procurement workshop was held to determine the most efficient way to deliver the project (detailed design and construction) while managing the risks identified. Various forms of packaging the works along with contracting methods were examined.

The Project Delivery Plan (PDP) for the scheme was revised in December 2013 to incorporate the outcomes of the abovementioned workshops and ensuing project management structure changes, as the scheme moved to Concept Design phase.

In 2014 a draft concept design was developed. Prior to the finalisation of the Concept Design Report potential safety issues were identified for the design and construction phases through Hazard, Constructability and Risk workshops. The outcomes of all workshops were collated to feed into the final concept design as a means to inform the detailed designers.

Running parallel to the concept design phase was the environmental assessment for the proposal. While an EIS was prepared for the overall scheme in 1997, Council was required to review components of that in light of changes to relevant legislation and regulator processes.

The subsequent Review of Environmental Factors (REF) was endorsed by Council in April 2015 after community exhibition and engagement with key stakeholders.

### **Financial and Economic Considerations**

In January 2014, the NSW government confirmed that \$10.79 million funding was still available for REMS 1B as per the original MOU, and these funds were transferred to Council in June/July 2015.

The current estimate for REMS Stage 1B is \$130 million and this is included in Shoalhaven Water's long term financial plan (LTFP). Council has sought other funding including an unsuccessful application under the State Government's Local Infrastructure Renewal Scheme (LIRS).

The financial plan allowed for an increase over CPI for a number of years for sewer charges to avoid a "price shock" when entering the REMS1B implementation phase. This strategy has been in place for a number of years and the 2016/17 charges are proposed to increase by 3% over the 2015/16 charges. Modelling for the subsequent years has been based on increases of 2.5%.

As referred to above, without the proposed upgrades to the WWTPs, any economic development that occurs will be constrained by the capacity of the existing Nowra and Bombaderry WWTPs.

Any economic development on brownfield sites that are already connected to the Nowra and Bombaderry WWTPs would result in further EPA licence breaches, and would have impacts on health and industry.

In addition, poor water quality in the Shoalhaven River, which can occur as a result of high rainfall events and unplanned sewerage discharges, can result in oyster harvesting being shut-down for extended periods of time to prevent the harvest of contaminated product.

Without REMS 1B and the proposed WWTP upgrades, the potential remains for unplanned sewerage spills and effluent discharges to result in an even greater number of closure periods for harvesting oysters. When such events occur, impacted oyster leases can be shut down for three weeks at a time, which can result in a direct loss or deferment of revenue and impacts on the region due to the contribution to gross regional product and employment that the industry provides. An independent economic analysis was undertaken to review the benefits and costs of the proposed scheme. Positive benefit /cost ratios of 1.69-1.83 were determined based on the total scheme costs with a number of variations considered.