MIDCOAST council

WATER SECURITY DURING DROUGHT
Nabiac Temporary Desalination Plant

The Manning / Great Lakes water supply is the largest of the five systems in the MidCoast region and services 90% of the MidCoast population. It is supplied from the Manning River, via Bootawa Dam and the Nabiac Aquifer System. During this prolonged drought, there is a need to develop alternative water supplies until normal rainfall returns to the region.

In late 2019, existing bore pumps in the Nabiac Borefield were lowered by approximately one metre each to gain additional yield.

An additional four production bores were also installed, bringing the total number of bores to 18. The borefiled is now reliably producing around 11 million litres per day.

During January and February an additional five bores will be installed, which is estimated to yield an additional 4 million litres per day.

Temporary desalination plant

A further project is being fast-tracked to ensure water security for the Manning / Great Lakes supply through the drought - a temporary desalination plant at Nabiac. A mobile desalination reverse osmosis membrane plant located at the Nabiac Borefield and connected to the existing Nabiac water treatment plant for disinfection and distribution.

It should yield an additional 3 million litres per day by mid-March, and then a further 2.5 million litres per day when additional units are operational by May.

Current situation

We are currently experiencing the worst drought on record (based on local history back to 1880). The previously lowest recorded rainfall in Taree was 555mm in 1994. In 2020 we received approximately 470mm. Average rainfall conditions are predicted to return in February 2020.

We have exceeded the record for the number of consecutive days that the Manning River - which supplies the Manning Water Scheme - has flowed below 50 million litres a day, as measured by the Killawarra gauge. The previous record was 26 consecutive days and we have now exceeded 60 days.

We are currently also extracting approximately 10 million litres of water per day from the Nabiac borefield to support the Manning scheme.

The area is currently at Level 4 severe restrictions which have been in place since 25 November 2019.

The current usage and storage levels indicate that, without additional rainfall in the upper catchments of the Manning River or any other actions, there is approximately 60 days of water remaining in storage at Bootawa. If storage was to be exhausted, the system would run entirely off Nabiac borefield.

Facts and Figures

- Water demand has averaged 20 million litres per day since the introduction of Level 4 restrictions and demand is still above the 17 million litres per day target.
- The deep water access system at Bootawa has been assembled and is ready for operation. This will allow us to access water at the bottom of Bootawa Dam that is not accessible via gravity.
- Current weather forecasts for rainfall are not favourable with a low chance of rain expected for January 2020.
- Current river flows have all but ceased, and the longest ever continuous record for no extraction from the Manning River has now been set.

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How does the desalination plant work?

The plant is expected to produce 5.5 million litres of water per day. The water will be desalinated through a reverse osmosis process in temporary desalination units that are connected to the Nabiac Water Treatment Plant at the Nabiac Borefield.

The increased production will ease pressure on water storage at Bootawa until rainfall returns. It also has the potential to extend the period of level 4 water restrictions and delay applying level 5 water restrictions.

A range of infrastructure will need to be installed to support the operation of the temporary desalination plant, including:

- Site establishment and preliminaries
- Raw water intake structure including pumps and screens
- Raw water pipeline (750m of 400mm diameter) from river to Nabiac plant.
- Interconnection infrastructure between mobile desalination units.
- Interconnection infrastructure to Nabiac plant.
- Waste transfer main (5.5km of 400mm diameter)
- Discharge works at discharge point in Wallamba River

The desalination plant will also require significant power to operate, which will be supplied via portable generators.

A copy of the Review of Environmental Factors for the project can be found on our website.

Work on the desalination plant commenced in January 2020. Recycled water only is being used for construction (dust suppression and road reconstruction).

What will the project cost?

The overall cost of the project, including running the desalination plant for six months, is estimated at $12.9 million (excluding any contingency).

The project will be funded from the existing capital works budget for water infrastructure. The overall budget for 2019/2020 is not expected to be increased, however other programmed works will need to be delayed.

The project is also supported by $1 million in State Government funding and other Federal and State funding is currently being sought.

The current levels of restrictions are already placing a massive burden on some sections of the community and businesses.

The gross regional product (GRP) of the MidCoast area is around $3.3B. If only 25% of the contributing industries were impacted by water restrictions by more than 1% then the loss to our economy would be more than $8.25M.

Approvals required

We are currently working with the NSW Government to secure all required approvals to proceed with the operation of the desalination plant, and are expecting them to be granted early in the new year.

This includes the Environment Protection Licence to permit water extraction and discharge the concentrated salt water taken out through the reverse osmosis process.

Why a temporary plant?

A permanent desalination plant is not an option, given the time it would take to build and commission.

Our immediate priority is to develop alternative water supplies to deal with the current drought, however parts of the infrastructure required to run the temporary plant will be permanent and could be used again in the future.

Forward projections

The implementation of the temporary desalination plant for the Manning Scheme by March 2020 will mean we will not run out of water, however will need to continue on Level 4 restrictions until normal rainfall conditions return.

Any rainfall and extraction that occurs between now and February 2020 will only improve this situation.

We also have plans to reduce demand or bring additional water by road or rail if required to further supplement the water supply before the desalination plant is operational.