

## **APPENDIX 4: PRELIMINARY ASSESSMENT OF POTENTIAL DESALINATION FACILITY SITES**



## ASSESSMENT OF POTENTIAL LOCATIONS FOR DESALINATION FACILITIES

Consideration of potential locations for a desalination plant within the NOROC study area has been undertaken to provide context for this option. Broad assessment criteria were developed to identify potentially suitable locations for further investigation. For the purposes of this report, general localities have been identified, not specific parcels of land. Note this assessment does not constitute an exhaustive assessment of all potential locations for a desalination plant, and while the outcomes are the preferred locations based on the currently available information, they should not be interpreted as the only possible sites. A comprehensive site selection process would need to be completed as part of further investigation if the desalination option is to be progressed.

The key considerations for potential desalination plant locations are as follows:

1. Less than 2 km from the ocean to minimise the cost of pumping, energy and transport;
2. Land parcel >24 ha in area to cater for approximate footprint of the desalination plant. This has been based on the Tugun desalination plant and allowing for a 100 m buffer;
3. The site must be located on suitable land with adequate buffer distances from:
  - Urban areas;
  - Tourism areas;
  - Protected agricultural areas, such as state significant farmland;
  - National Parks and Nature Reserves;
  - Other protected areas including SEPP14 (Coastal Wetlands), SEPP26 (Littoral Rainforest) areas, SEPP44 (Koala habitat), Marine Parks, other key habitats, wildlife corridors and areas protected by relevant LEPs.
4. Central to the main water users in the study area and areas for increased future demand (i.e. between Tweed and Ballina population centres);
5. Close to existing water supply infrastructure;
6. Proximity to existing electricity supply;
7. Major primary works requirements such as new river crossings, etc.;
8. Topography (to minimise the cost of pumping and energy, etc.).

Based on the above considerations, potential locations have been shortlisted for consideration. Table A4.1 presents a description of how well each shortlisted location meets the listed criteria. Figure A4.1 shows the spatial assessment undertaken to shortlist sites within 2 km of the coastline.

Wooyung, located south of Pottsville in the Tweed Shire is considered to be the preferred location based on its position central to the major water demand centres, suitable land with appropriate distances from sensitive land uses and environmental protection areas, and proximity to planned regional interconnection pipeline (A).

**Table A4.1: Assessment of potential desalination plant locations**

Location	Location relevant to major demand	Connection to Water Supply Network	Connection to Electricity Supply	Other advantages/ disadvantages	Conclusion
Wooyung, Tweed Shire	Central to major water demand centres	New connection pipeline would be required. The planned interconnection pipeline between Tweed Shire and Rous Water (Regional Scenarios) would provide connection at this location.	Hastings Point zone substation is approximately 12 km away. The capacity would need to be increased to cater for desalination demands.	<ul style="list-style-type: none"> <li>• Relatively flat topography</li> <li>• Low lying areas are flood prone</li> <li>• Low visibility (away from urban centres and major highways, etc.)</li> </ul>	The preferred location based on assessment criteria
Tyagarah, Byron Shire	Central to major water demand centres	Close to existing Rous Water bulk supply pipelines.	Ewingsdale zone substation is approximately 3-4 km away. The substation has current capacity issues, but is scheduled for upgrade in 2012/13 to overcome these issues. The capacity would need to be increased to cater for desalination demands.	<ul style="list-style-type: none"> <li>• Relatively flat topography</li> <li>• Low lying areas are flood prone</li> <li>• Pipeline to coast would have to go through Tyagarah Nature Reserve</li> <li>• Byron Bay Marine Park is located offshore and the marine feedwater intake and brine disposal is likely to be contrary to the objects of the Marine Park.</li> <li>• Potential conflict with tourism industry of Byron Bay (temporary offshore rig may decrease amenity of Byron/ Belongil Beach)</li> </ul>	Not considered viable due to environmental constraints associated with the Byron Bay Marine Park.
Seven Mile Beach Lennox Head Ballina Shire	Central to major water demand centres	Existing bulk supply pipelines lies approx. 5 km from nearest northerly point of this location and would require crossing the Richmond River	The nearest zone substation is in Ballina approx. 5 km from nearest northerly point of this location and would require crossing the Richmond River	<ul style="list-style-type: none"> <li>• Relatively flat topography</li> <li>• Low lying areas are flood prone</li> <li>• Byron Bay Marine Park is located offshore and the marine feedwater intake and brine disposal is likely to be contrary to the objects of the marine park.</li> </ul>	Not considered viable due to environmental constraints associated with the Byron Bay Marine Park
South Ballina, Ballina Shire	Some distance south of the major demand centres	Existing bulk supply pipelines lies approx. 7 km from this location.	The nearest zone substation is in Lennox Head approx. 3 km from nearest southerly point of this location.	<ul style="list-style-type: none"> <li>• Relatively flat topography</li> <li>• Low lying areas are flood prone</li> <li>• Need for major river crossing of the Richmond River</li> </ul>	Not considered viable due to distance from the main urban centres, and the requirement for a major river crossing of the Richmond River.



Figure A4.1: Spatial assessment of potential desalination plant locations

