

Sustainable Industries — Urban Development

Agnes Water leads the way in sustainable housing

Agnes Water will soon be home to a landmark housing development. The Agnes Water Beach Club, designed and constructed by developer B.V. McKenzie Building, sets new standards in sustainable use of energy and water resources while minimising environmental impacts.

Agnes Water Beach Club is a 32-unit residential complex in the main street adjacent to the shops and 150m from the beach. The unique natural environment of Agnes Water and Seventeen Seventy provides the motivating backdrop for this innovative development.

The building is designed to work both for its owner and for the environment. It will harness solar energy to create power and hot water and utilise natural cooling mechanisms. The development is designed to capture and treat rainwater and wastewater and recycle these resources on site. These processes effectively move the building towards self-sufficiency, indicating the way of the future for sustainable use of water and energy in urban development.

The company

B.V. McKenzie Building's goal is to reduce the ecological footprint of its urban developments.

In partnership with the EPA, this developer sets the challenge for the rest of Queensland by demonstrating that more sustainable forms of urban development are not only possible, they make sound business sense. The EPA has assisted the company by coordinating regulatory and inter-departmental input, and removing institutional impediments. This approach ensured a collaborative and supportive association between Queensland Health, EPA Operations, Miriam Vale Shire Council and the developer.

The issues

Agnes Water is at present an unspoilt environment protected from development by difficult access and limited water and sewerage capacity, but with large predicted growth rates. There has been a 26 percent increase in population in Miriam Vale Shire over the last five years, compared with a Queensland average of 9 percent and it is predicted that the Agnes Water population will increase by 60 percent in the next five years.

Such rates of growth inevitably put pressure on the environment and infrastructure needed to service the population. Like many parts of Australia, Agnes Water is restricted in terms of its existing water and sewage services, with the current water supply at the limits of its capacity.

This project demonstrates that sustainable options can provide solutions, enabling financially viable development to occur without putting undue pressure on the environment or existing resources and infrastructure.

Agnes Water Beach Club



For further information:

Brett McKenzie
McKenzie Building
Ph: (07) 3812 7488
email: mckbuild@gil.com.au

Lyndell Stone
Sustainable Industries
Division
Ph: (07) 3227 8925
email:
lyndell.stone@env.qld.gov.au

The built environment as a water source

Through integrated water resource management the developer has demonstrated to council that the site's water needs can be met without connecting to the reticulated water supply system or sewerage system. Council has recognised this benefit and agreed to remove the site from its sewer map and forgo \$180,000 in headworks connection charges.

The key is effective use and reuse of all water on the site. All water that falls on-site (roof, paving and road runoff) is collected and used for potable and non-potable purposes. On-site wastewater treatment provides a source of recycled water suitable for toilet flushing, gardens and possibly clothes washing.

The built environment as a power plant

Hot water is supplied through solar hot water units on the roof. North-facing photovoltaic panels will generate electricity all year round. Any excess power will be sold back into the mains electricity grid.

The home units are designed to ensure a comfortable temperature all year round so very little traditional heating or cooling will be needed to ensure comfort. Importantly these inclusions will prevent over 150 tonnes of greenhouse gas emissions each year.

Conclusion

This is a groundbreaking development that fits within the spirit of the Gladstone Region Sustainability Group Program, to which Miriam Vale Shire Council is a key signatory.

The Beach Club is a leading example of cost-effective changes that can be made in urban development to ensure environmental sustainability. As well as harnessing renewable energy resources, it will manage all of the site's water supplies (rainwater, stormwater and wastewater) in an integrated and holistic manner. As a consequence, the ecological footprint of the development will be reduced.

The developer is set to reap the benefits of this approach with an enhanced level of interest in the property and the promise of future success due to the niche market position the Beach Club holds.

Key outcomes

Will save:

- 1ML of stormwater from polluting oceans and rivers;
- over 3ML of water from being extracted from groundwater and rivers;
- over 3ML of sewage being treated in the local treatment plant;
- over 1500 tonnes of coal from being burnt each year; and
- 150 tonnes of greenhouse gases from being discharged into the atmosphere.

Will reduce:

- pressure on reticulated water supply, helping to defer the need for new water supply and wastewater infrastructure;
- stormwater flows, improving operation and maintenance of stormwater infrastructure; and
- capital cost, compared with conventional stormwater elements.

Research and demonstration sites around the country are showing that integrated water resource management and water sensitive urban design provide considerable benefits to the community and the developer. These include developments at:

- Fig Tree Place in NSW - this equated to a 1% saving of total construction costs (\$2.7M) or \$960.00 per residence; and
- Casuarina Beach in NSW - the use of infiltration basis and drainage swales cost one sixth of traditional stormwater infrastructure costs.

In future versions of this fact sheet we will be able to report on the outcomes for the Beach Club.