

PROJECT DESCRIPTION

One consequence of the trend towards higher-density residential development in the City of Port Phillip is a higher volume of rainwater that is collected on the larger areas of roof and paving. When the amount of roof area on a site increases there is a corresponding diminution of lawn and garden areas.

Greater site coverage impacts on the existing stormwater drainage system combined with the flat topography in many parts of the municipality and the occurrence of tidal reflux (tidal waters entering the stormwater system), the impact on the city's ageing drainage network during rain and storm events is considerable. The environmental impact too is significant with greater volumes of stormwater and the subsequent high contamination loads, impacting on receiving waters, in this case, Port Phillip Bay.

Rainwater retention and re-use programs are successful if this increased amount of water is collected and used on site. Reducing the impacts on the city's stormwater drainage system and the water quality of the Port Phillip Bay are concerns being addressed by the City of Port Phillip in a number of ways. In 1999, Council obtained a grant of \$25,000 from the Commonwealth (through its Coasts and Clean Seas program), which was matched by Council, to fund a practical construction and demonstration project of stormwater retention and use on a multi-unit development.

The site at 48 Ormond Road, Elwood fitted the criteria for the project as it formerly housed a detached family home with 29 percent hard surface site coverage and was to be replaced with a seven-unit, three-storey apartment building with increased site coverage to over 95 percent.

Because of the type of development, it was not desirable to use stored water for any purpose that could lead to human consumption or illness. With little natural ground surface at this site, irrigation was regarded as impractical. The scope of the re-use was therefore directed to 'plumbed-in' toilet cisterns.

Calculations indicated that water collected on the roof area (about 270 square metres or 43 per cent of the site) would be fully used just to flush toilets in the seven apartments. Of course, the amount of rainfall and when it occurs will affect the supply of water, but it is expected that a 15,000 litre storage tank for collected stormwater was sufficient capacity.

The stormwater retention system

The system comprises a roof catchment area of about 270 square metres, downpipes, storage tank of 15,000 litres, pump, filtering and monitoring equipment and supply lines to all toilets within the seven apartments. An overflow pipe discharges excess water to the street drain.

Should the tank reach a minimum volume, a small top-up from the mains supply occurs automatically, until the next shower of rain provides replenishment.

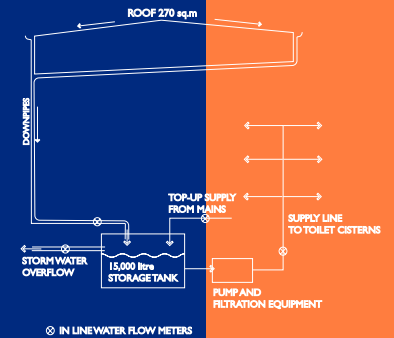
To record and monitor levels of rainfall, retained water and recycled water, in-line flow metering has been installed. Equipment on-site collects all data and a telephone line transmits this data to a monitoring site at the council's South Melbourne office.



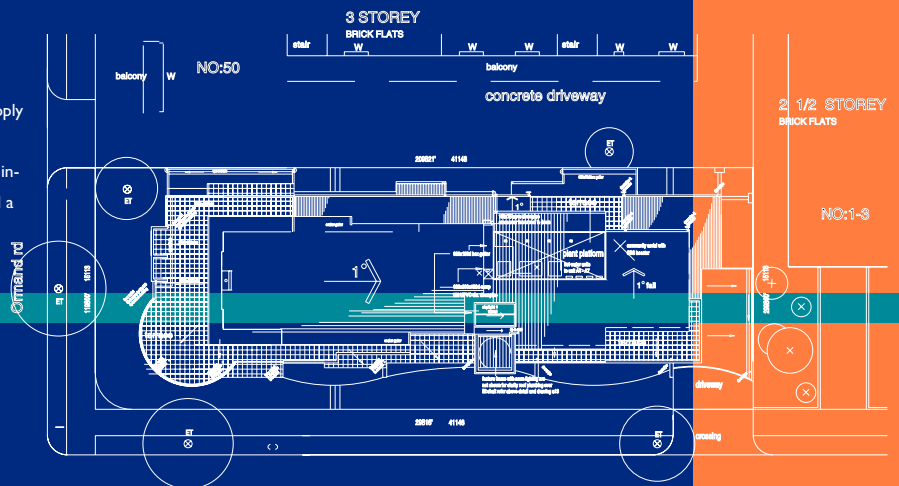
48 ORMOND ROAD, ELWOOD



DETAIL OF WATER STORAGE TANK & PUMPS HOUSED IN THE BASEMENT CARPARK



RAINWATER COLLECTION AND DISTRIBUTION SYSTEM DIAGRAM.



ROOF PLAN

Acknowledgments

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Builder: Hickory Developments – George and Michael Argyrou - ph: 9429 7411

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Monitoring equipment supplier: Pryde Measurement, John Merrington, - ph:

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For their financial contribution

The Natural Heritage Trust

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48 ORMOND ROAD, ELWOOD STORM WATER RETENTION PROJECT November 2001

