



Bulli Aged Care Centre of Excellence

Integrated Water Management Plan

Project No : 7786

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1 INTRODUCTION

This Integrated Water Management Plan (IWMP) has been prepared for lodgement with the State Significant Development (SSD 7751) application for the Bulli Aged Care Centre of Excellence.

The IWMP for the Bulli Aged Care Centre of Excellence covers the both the Hospital facility and the Aged Care facility. The IWMP addresses the Office of Environment & Heritage letter of 28th July, 2016 and includes water cycle management measures that have been incorporated in each development to reduce the overall water consumption and minimise the effects of the rainwater discharge from the sites.

A summary of the stormwater management strategy has been provided within this report for information.

2 BULLI AGED CARE CENTRE OF EXCELLENCE

Water Sensitive Urban Design

The Bulli Aged Care Centre of Excellence consists of;

- New building works including demolition and enabling works of a minor building; and
- The construction of a Hospital and Aged Care facility.

The development will incorporate the following Water Sensitive Urban Design measures;

- Rainwater on site detention system (OSD);
- Water quality treatment devices;
- Water efficient fixtures and fittings; and

Potable water for the new building will be supplied from the existing external Sydney Water main. To reduce contamination of the potable water supply, backflow prevention devices will be installed as per the requirements of AS3500.

2.1 DRAINAGE REQUIREMENTS

There is existing drainage channel/water course to the north of the site, through private properties. As required by the NSW Office of Water, riparian set back are applicable. As there are no plans to connect to this channel and works are outside the 10m setback, no representations to NSW Office of Water have been made at present.

2.2 WATER QUALITY

Prior to discharge stormwater is required to be cleaned to meet Council standards. Due to site constraints it is unlikely that Water Sensitive Urban Design practices will be accommodated; basins, landscaped swales, bio-retention etc. As a consequence pollutant removal devices will be designed to remove gross pollutants, suspended solids, reduce nutrient runoff including nitrogen and phosphorous. Pollutant removal devices have an upfront capital cost and require at least yearly inspection and maintenance, which incurs on-going cost. The below table, as seen in Wollongong Development Control Plan 2009 Chapter E15: Water Sensitive Urban Design, indicates the level of removal required.

Performance target reduction loads	Development Type	
	Residential Subdivisions greater than 20 lots	Multi-dwelling housing development
		Residential Flat Buildings
	Industrial Subdivision	Mixed Use Developments
		Minor Residential subdivisions (up to 20 lots)
	Business Parks	Commercial Office Development
		Industrial Development
Gross Pollutants	90%	90%
Total Suspended Solids	85%	80%
Total Phosphorus	60%	55%
Total Nitrogen	45%	40%

* Reduction in loads are relative to the pollution generated from the development without treatment

Figure 1 – Wollongong City Council's stormwater pollutant removal rates

2.3 OVERLAND FLOW

It is proposed that in the event that the piped stormwater system fails due to blockage or other obstructions, then the stormwater will be required to be conveyed as overland flow. The overland flow was presented and accepted by the ERG for stormwater overland to be directed away from building entries towards the northern boundary. The ERG would not accept external ground levels falling towards building entries. Also, it is not common practice to allow overland flow to be conveyed under buildings.

It is proposed that the overland flow paths will be designed to convey the 1% AEP stormwater flows with any landscaping within the overland flow paths to be minimal so as to prevent obstructions or blockages.

2.4 ONSITE STORMWATER DETENTION (OSD)

It is proposed to take the stormwater captured for the site within drainage lines for the RACF running along the north edge of the site and for the IPU running along the east edge of the site. Preliminary analysis, in accordance with Wollongong Council DCP, suggests that an On Site Detention (OSD) tank will be required with a capacity of approximately 65m³. Conventional construction for the tank is assumed at this stage of design. As the design progresses options to reduce the OSD requirement will be explored.

The pit and pipe system will be designed to cater for the 5% AEP storm event. It is proposed that overland flow path will cater for larger events.

2.5 EROSION CONTROL

During construction and while the site is disturbed, erosion prevention and sediment control measures will be required. Erosion prevention generally involves managing stormwater by diverting overland flow around construction areas as well collecting stormwater within the construction zone and directing to sediment control devices. Devices likely to be incorporated are: silt removal like fences, hay bales, and grass lined swales; water flow dissipation and discharge control devices such as sand bags, pollution mattresses, and basins.

Erosion prevent and sediment removal strategies need to be inspected regularly during service and construction works, cleaned and maintained after storm events, and modified to suit construction work progress.

2.6 WATER EFFICIENT FIXTURES AND FITTINGS

All fittings and fixtures will be WELS star rated, the installation of water saving taps and outlets to reduce water consumption will be adopted. The following ratings are to be used;

- 4 WELS stars rated dual flush toilets;
- 4 WELS stars rated tapware; and
- 3 WELS stars rated shower.

Fire Services

Fire services test water will be recirculated within the fire service using zone flow check devices.

3 CONCLUSION

The water management systems proposed within this report aims to reduce the overall water consumption of each development and improve water quality of any stormwater discharge. The systems proposed include;

- The use of water efficient tapware which will provide some benefit in reducing the water consumption;
- The use of water quality treatment devices which will improve the quality of the water discharged to the Council stormwater system; and
- the recirculation of fire services water used in the monthly testing.