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BLOCK 9, SECTION 132 – CASEY WATER SENSITIVE URBAN DESIGN STATEMENT

INTRODUCTION

This statement presents the Water Sensitive Urban Design (WSUD) works that are proposed for the development of the Casey Towers development at Block 9, Section 132 – Casey. This statement outlines Territory Plan requirements associated with this development in relation to stormwater quality, stormwater quantity and water use reduction.

PROJECT OUTLINE

The total site is approximately 5,478m² with no buildings onsite. Currently the site is a zoned CZ1: Core Zone.

WATER SENSITIVE URBAN DESIGN

Mains Water Reduction Target

The Waterways: Water Sensitive Urban Design General Code (The Code) states, under Rule 1, the following requirements. Development achieves a minimum 40% reduction in mains water consumption compared to an equivalent development constructed in 2003.

This is applicable to all development currently connected or intended to be connected to mains water supply except any of the following:

- a) Development subject to the Estate Development Code.
- b) Development for minor alterations or extensions involving 50% or less of the existing floor area.

To meet this target the development is proposing the installation of the following water harvesting measures:

- 4 Star showerheads
- 4 Star sinks
- 4 Star basins
- 4 Star toilets
- 4 Star urinals
- 4 Star washing machines
- 86kL rainwater reuse volume will be located within the development for use on irrigation.



Please see below a summary of the total reduction for the development incorporating both Residential and Commercial portions:

	Potable Water Usage (L/day)	Pre 2003 Potable Water Usage (L/day)	Percentage Reduction
Residential	36,053	60,260	40.2%
Commercial	1,974	3,107	36.5%
Total	38,027	63,367	40.0%

This obtains a 40% or greater reduction in mains water consumption compared to an equivalent development constructed in 2003. The ACTPLA calculator is appended to this report.

Stormwater Quantity – Onsite Retention

The Code states, under Rule 2, the following requirements. Development complies with at least one of the following:

- a) Stormwater retention management measures are provided and achieve all of the following:
 - i) Stormwater storage capacity of 1.4kL per 100m² of the total impervious area of the site is provided specifically to retain and reuse stormwater generated on site as a whole.
 - ii) Retained stormwater is used on site.
- b) Development captures, stores and uses the first 15mm of rainfall on the site.

This is applicable to development for at least one of the following:

- a) Development on sites greater than 2,000m² involving works that have the potential to alter the stormwater regime for the site, including sites subject to the Estate Development Code.
- b) Development within existing urban areas which increases impervious area by 100m².

Using a site impervious area of 4,278m², the proposed developments Onsite Retention requirement is 59.9kL. To meet this target the development is proposing the installation of a 86kL Onsite Retention tank. This volume will be used as rainwater reuse.

Stormwater Quantity – Onsite Detention

The Code states, under Rule 3, the following requirements. Development complies with all of the following:

- a) Capture and direct runoff from the entire site.
- b) Stormwater storage capacity of 1.0kL per 100m² of the impervious area is provided to specifically detain stormwater generated on site.
- c) The detained stormwater is designed to be released over a period of 6 hours after the stormwater event.

This is applicable to development for at least one of the following:

- a) Development on sites greater than 2,000m² involving works that have the potential to alter the stormwater regime for the site, including sites subject to the Estate Development Code.
- b) Development within existing urban areas which increases impervious area by 100m².



This is not applicable to development for any of the following:

- a) Development of major roads
- b) Sites identified in a precinct code indicating that stormwater detention requirements have been fully met.

Using a site impervious area of 4,278m², the proposed developments Onsite Detention requirement is 42.8kL. As allowed by The Code the development is proposing to utilize 50% of the Onsite Retention volume towards our Onsite Detention requirement and hence the proposed developments net Onsite Detention requirement is zero.

Stormwater Quality – Stormwater Quality Target

The Code states, under Rule 6, the following requirements. Development achieves a reduction in the average annual stormwater pollutant export when compared with an urban catchment of the same area with no water quality management controls for all of the following:

- a) Gross Pollutants by at least 90%
- b) Suspended Solids by at least 60%
- c) Total Phosphorous by at least 45%
- d) Total Nitrogen by at least 40%

This is applicable to development for all of the following:

- a) Development on sites greater than 2,000m².
- b) Where development involves works that have the potential to alter the stormwater regime for the site.

To meet this target the development is proposing the installation of an SPEL Hydrosystem1000 (or equivalent). A MUSIC model has been utilised to show evidence of this, please refer to the results below:

	Source (kg/yr)	Residual Load (kg/yr)	Reduction (%)	Target (%)
Flow (ML/yr)	3.08	2.51	18.7	-
TSS (kg/yr)	478	86.2	82.0	60.0
TP (kg/yr)	0.69	0.292	57.7	45.0
TN (kg/yr)	8.24	4.44	46.1	40.0
GP (kg/yr)	107	0.0	100.0	90.0



Nuisance Flooding

The Code states, under Criterion 8, the following requirements. Development achieves the following:

- a) Accommodate overland stormwater flows up to the 1% AEP
- b) Reduce nuisance flooding

This is applicable to development for at least one of the following:

- a) Development on sites greater than 2,000m² involving works that have the potential to alter the existing drainage and overland flow regime for the site.

This rule is not applicable as this site does not alter the existing drainage or overland flow regime for the site.

Climate Change Adaption – Green/Living Infrastructure

The Code states, under Rule 9, the following requirements. Development achieves a minimum of 20% of the site area as permeable.

This is applicable to development for at least one of the following:

- a) Development on sites greater than 2,000m² involving works that have the potential to alter the stormwater regime for the site.
- b) Development within existing urban areas which increases impervious area of the site by 100m² or more.

Using a site area of 5,478m², the development requires approximately 1,096m² of permeable area. The existing soft landscaping and irrigated landscape areas on podium levels obtains a 20% or greater permeable area percentage.



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SUMMARY

The development proposes to incorporate the following measures to meet all requirements of the Waterways: Water Sensitive Urban Design General Code:

- Installation of water efficient fixtures, including:
 - 4 Star showerheads
 - 4 Star sinks
 - 4 Star basins
 - 4 Star toilets
 - 4 Star urinals
 - 4 Star washing machines
- Installation of 86kL of onsite retention to be used for onsite irrigation.
- Installation of a two (2) Ocean Protect 1.6L/s StormFilters.

As a result, the development will achieve the goals of the Territory Plan for Waterways: Water Sensitive Urban Design General Code.

Yours faithfully,

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