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## **BLOCK 7, SECTION 7 – FYSHWICK WATER SENSITIVE URBAN DESIGN STATEMENT**

### **INTRODUCTION**

This statement presents the Water Sensitive Urban Design (WSUD) works that are proposed for the development of Block 7, Section 7 – Fyshwick.

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 4,981m<sup>2</sup> with an existing service station. Currently the site is zoned IZ2: Industrial Mixed Use.

### **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:

- 83kL rainwater reuse tanks will be located around the development for use on irrigation

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 100m<sup>2</sup> 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 2,000m<sup>2</sup> 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 100m<sup>2</sup>.

Using a site impervious area of 4,110m<sup>2</sup>, the proposed developments Onsite Retention requirement is 57.5kL. To meet this target the development proposes the installation of an 83kL 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 100m<sup>2</sup> 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 2,000m<sup>2</sup> 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 100m<sup>2</sup>.

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 4,110m<sup>2</sup>, the proposed developments Onsite Detention requirement is 41.1kL. 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 2,000m<sup>2</sup>.
- 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 Ecoceptor1500 (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 (%)
<b>Flow (ML/yr)</b>	2.39	2.07	13.5	-
<b>TSS (kg/yr)</b>	370	31.9	91.4	60.0
<b>TP (kg/yr)</b>	0.535	0.104	80.5	45.0
<b>TN (kg/yr)</b>	6.39	2.32	63.6	40.0
<b>GP (kg/yr)</b>	88.3	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 2,000m<sup>2</sup> involving works that have the potential to alter the existing drainage and 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 2,000m<sup>2</sup> 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 100m<sup>2</sup> or more.



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Due to the nature of this site it is not considered feasible to meet a 20% permeable area across the site. For this reason we are proposing to meet the Criteria requirements under Rule 9.

It is demonstrated that the development achieves all of the following:

- a) Increases permeable surfaces and living infrastructure through green spaces.
- b) Plants that require irrigation are supported by sustainable water systems such as onsite stormwater harvesting to achieve microclimate benefits
- c) Promotes evapotranspiration to mitigate extreme temperatures, improve air humidity and overall human comfort.

The proposed design makes all efforts to increase the green spaces across the development in areas that are not valuable to the operation of this Industrial site due to large vehicle movements. All plants that require irrigation are to be done via the proposed 83kL Onsite Retention tank.

#### **SUMMARY**

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

- Installation of 83kL of onsite retention to be used on site.
- Installation of a SPEL Ecoceptor1500.

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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