WSUD 04

Commercial development – compliance with the InSite Water Tool

Disclaimer

Organica Engineering, Water Sensitive SA and its partners take no responsibility for the selective application or interpretation by third parties of the information that constitutes the document. This document and its associated materials have been produced in good faith with all information contained deemed to be correct at time of production. Organica Engineering Pty Ltd, the authors, reviewers and contributors take no responsibility, legally or financially, for any loss/damage to property/persons/projects resulting directly/indirectly from the document in whole or part, its associated materials, or the interpretation thereof. Organica Engineering makes no claim as to the accuracy or authenticity of the content of this document and does not accept liability for loss or damages incurred as a result of reliance placed upon it.

Guide for water sensitive urban design – stormwater management

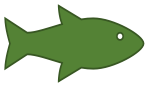
Commercial developments present many opportunities for WSUD techniques. To meet stormwater runoff volume reduction, peak flow, and quality and water use efficiency targets, solutions may include the use of raingardens, infiltration pits, rainwater (retention and re-use) tanks, small water tank-based and underground detention systems, green roofs, swales and permeable paving.

Carparks represent an excellent opportunity to better manage stormwater runoff through the introduction of one or more of the WSUD elements listed above. If our grey infrastructure like roads, carparks and pathways provides multiple functions and benefits

The InSite Water Tool provides a mechanism to demonstrate compliance of your development with South Australia's WSUD performance-based planning policy objectives, for commercial residential development sites with areas up to 5,000 m^2.

All four WSUD performance-based policy objectives must be met to achieve a complying development.

Table 1: Typical stormwater management solutions that can meet the performance objectives

	 VOLUME	 FLOW	 QUALITY	 EFFICIENCY
Objective	Harvest or infiltrate stormwater	Control peak discharge flows	Improve stormwater runoff water quality	Increase drought resilience
Target	No increase in annual average runoff volume (post-development compared with pre-development) (a 10% increase is allowed as a margin of error in the tool)	Increase in peak discharge flows (post-development compared with pre-development) less than or equal to zero.	Achieve a pollution reduction score of 100[1] or more [1]A score of 100 is equivalent to achieving a 45% reduction in nitrogen runoff	Greater than 25% potable water use reduction
Typical solutions				
Rainwater (retention) tanks	✓	✓	✓	✓
On-site detention (OSD)		✓		
Permeable paving	✓	✓	✓	
Infiltration systems	✓	✓	✓	
Unlined swales	✓		✓	
Biofiltration, e.g. raingardens			✓	
Water efficient fixtures with high WELS ratings				✓
Recycled water plumbed to toilets and outdoor uses				✓
Water efficient irrigation systems				✓

A development application to your local Council using the InSite Water Tool:

- should be undertaken by a suitably qualified professional.

- must include:
  - an InSite Water compliance certificate and associated report
  - drawings showing the WSUD features of the design and how they are integrated into the site.

Refer to *Water Sensitive SA Fact Sheet WSUD 01* for a comprehensive list of WSUD features to consider when integrating stormwater management with your overall site design.

Site examples

The following case studies have been provided to show compliant WSUD approaches for:

Example 1. A commercial and retail development
Example 2. A warehouse development

Figure 1: Clockwise from top left – underground rainwater storage tanks (one detention and two retention tanks), permeable paving, raingardens (Source: Andrew King)

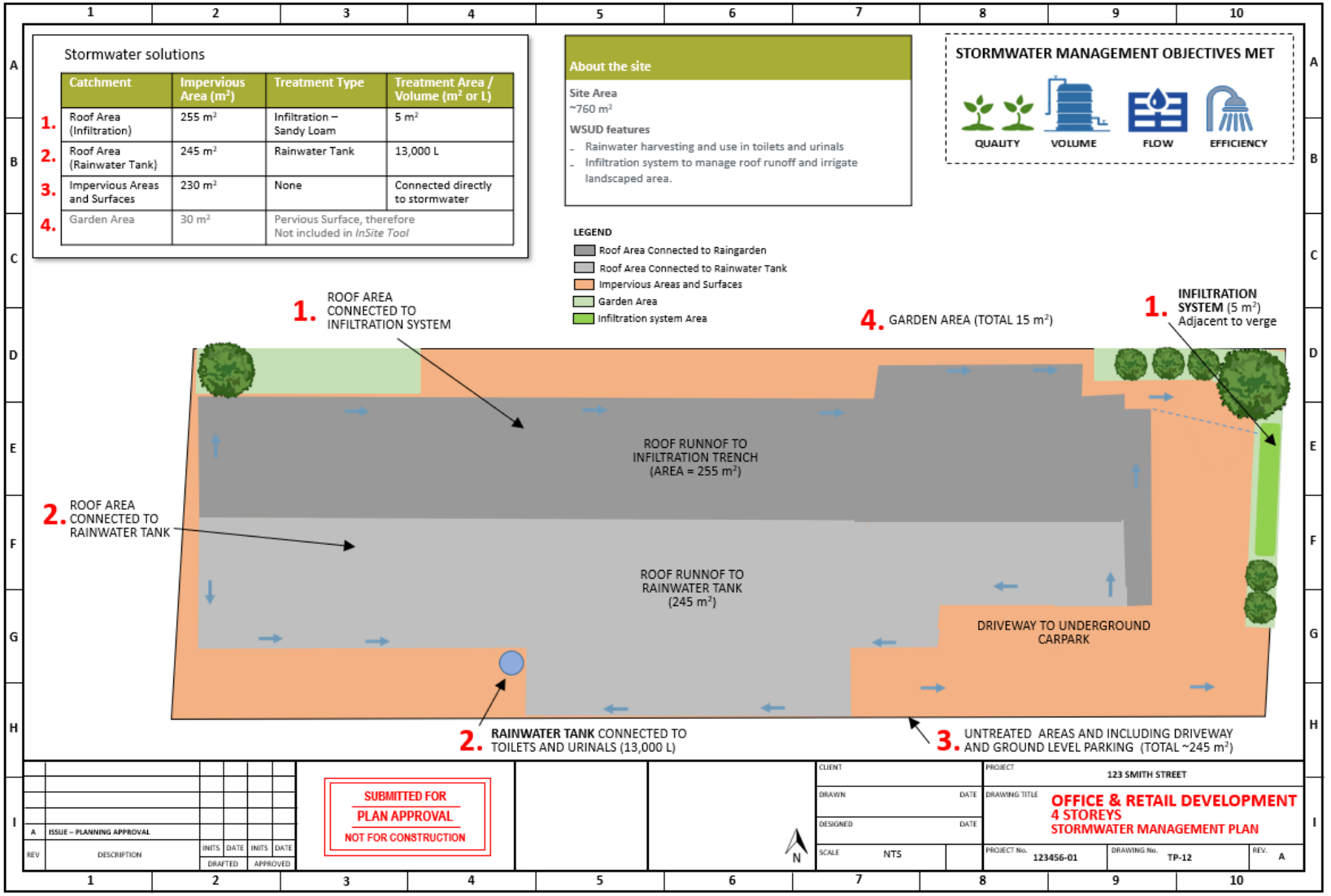


Figure 1: *Commercial and retail development – this development collects rainwater from half the roof into a 13,000 L rainwater tank connected to toilet and urinal flushing. In addition, water is infiltrated into the ground using an infiltration system. In this case, permeable paving for car parking areas is not required to meet stormwater objectives.*

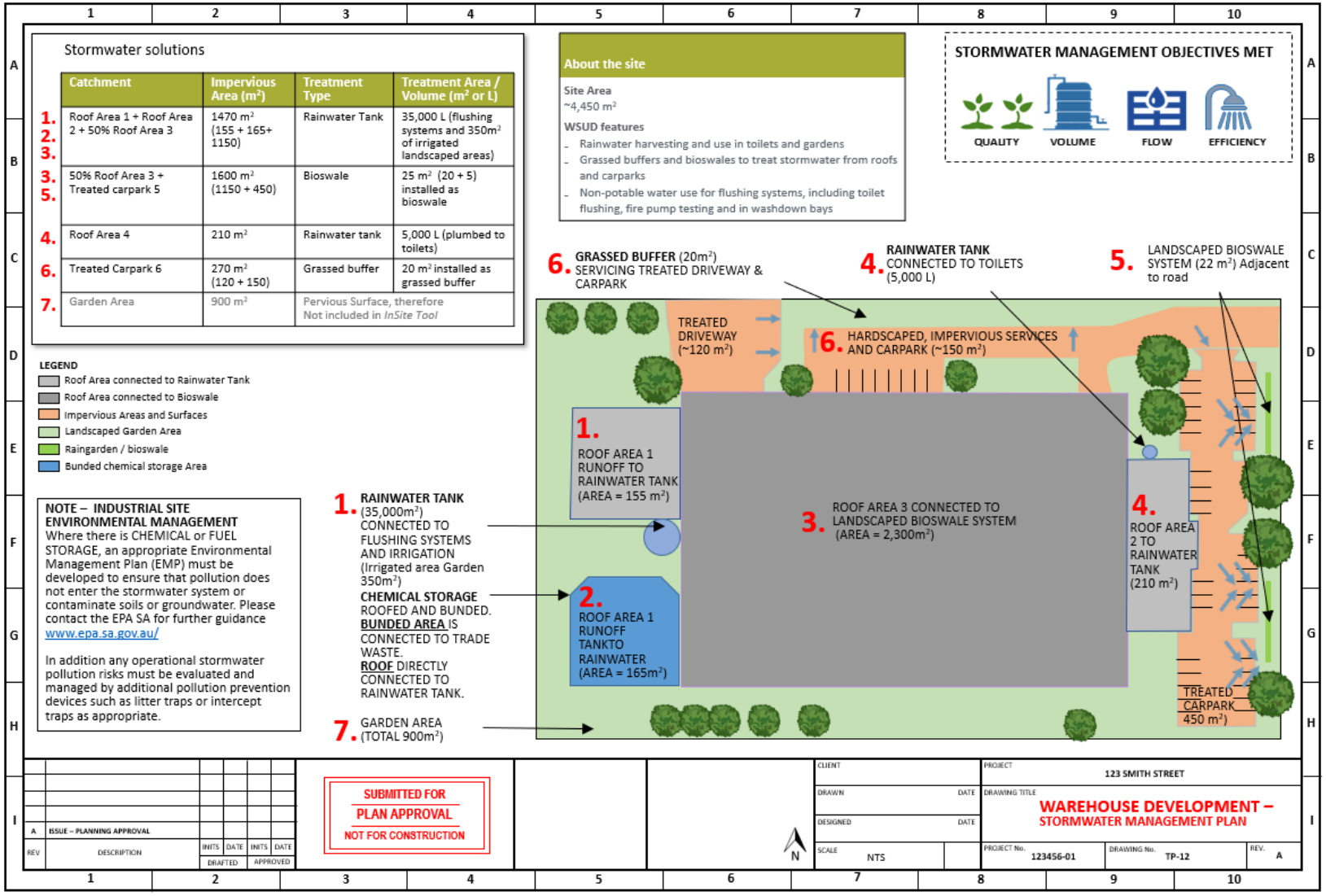


Figure 2: *Warehouse development – Option 1 - this site uses the available space and clearance to install grassed buffers and bioswales as part of the site's landscaping. Two separate rainwater tanks are installed to supply rainwater for non-potable water use including toilet flushing, fire pump testing and in washdown bays.*

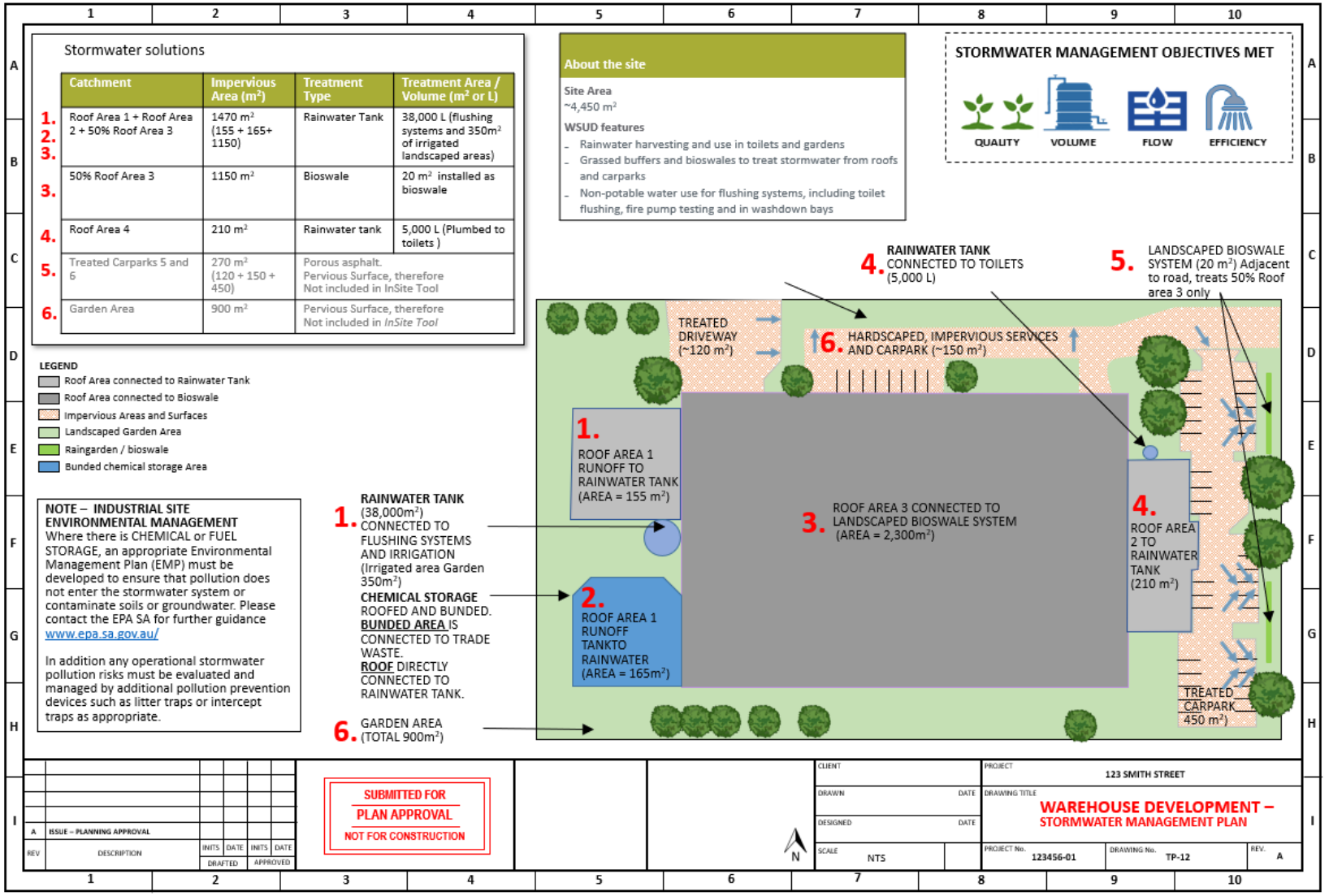


Figure 3: Warehouse development – Option 2 this site uses the available space and clearance to install a bioswales as part of the site's landscaping. Two separate rainwater tanks are installed to supply rainwater for non-potable water use including toilet flushing, fire pump testing and in washdown bays. Carpark and driveways consist of porous asphalt.