

WSUD – Raingarden Tree Pits C120.08



DESIGN STATEMENT

WSUD raingarden tree pits are bioretention systems but are contained within a tree pit with only a tree as vegetation. They are suitable for built-up areas and provide stormwater treatment, increased urban cooling and canopy cover. They can also provide low level over-flooding mitigation. This tree pit tech note covers a typical specification where installed behind the kerb with a covered tree pit. It assumes runoff can be diverted into the tree pit directly from the kerb.

Use of a submerged zone within tree pits is species-dependant. Merri-Bek City Council Streetscape WSUD Raingarden and Tree Pit Design Package (WSUD Package) provides a suite of design elements, applications and standard drawings to assist WSUD site-specific design.

APPLICABLE LOCATION

A footpath area with adjacent kerb and appropriate road or surface catchment in a heavily trafficked or commercial area as specified within Merri-Bek municipality.

CROSS REFERENCE SPECIFICATION

- Merri-Bek WSUD Design Package
- AS4419:2018 Soils for Landscaping and Garden Use.

STRUCTURAL SOILS

In an urban environment, soil under pavements and roads are highly compacted to meet load-bearing requirements and engineering standards. Compaction inhibits tree root growth and often results in soil volumes containing little water or nutrient content. Structural soils can alleviate this by providing adequate water, nutrients, and oxygen to tree roots without comprising surface load-bearing requirements.

MAINTENANCE

Key design considerations for easily maintainable WSUD tree pits in commercial areas include:

- Ensuring tree pit grates are lightweight, hinged and can be lifted by hand for easy maintenance access
- Including a flushing point for the drainage pipe
- Using a wide and accessible kerb inlet to limit blockages.

For typical ongoing maintenance requirements refer to WSUD Design Package, Section 8. Maintenance Checklist.

SIZING

Like other bio-retention systems, WSUD raingarden tree pits are usually sized to have a filter area of 2% of the upstream impervious catchment area.

LEVELS

As with other passive WSUD assets, the relative levels of elements of the catchment and the system itself are critical to design correctly. Refer to cross sections for more detail.

GENERAL NOTE

The standard details shown on this drawing are typical only. These details may need to be reconfigured to suit site specific conditions. If under drain connection to stormwater is not possible then tree species should be selected to be tolerant of periodic waterlogging.

CONSTRUCTION SUPERVISION

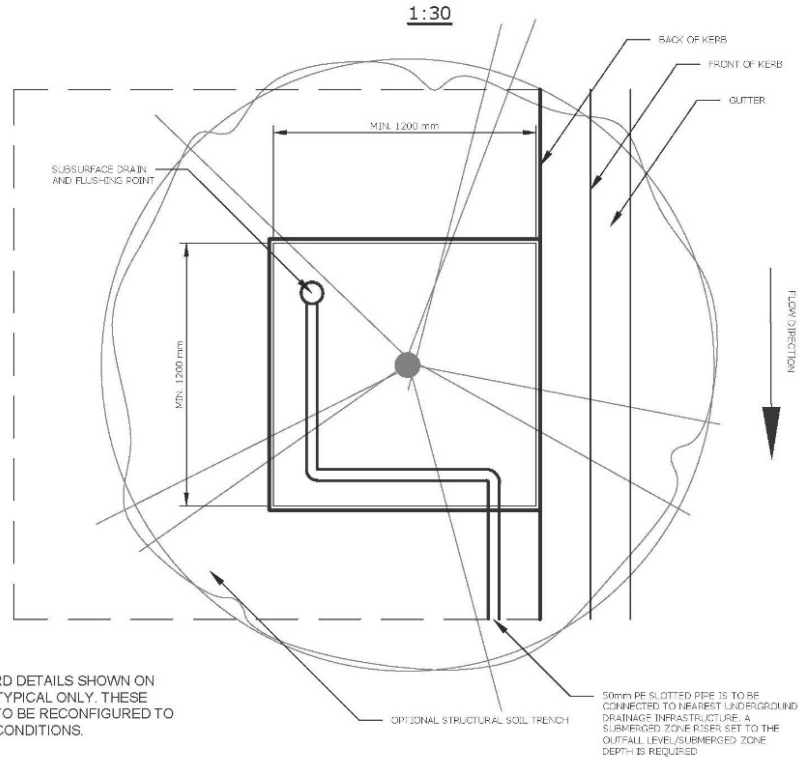
Construction hold points are dictated by ensuring the designed levels are achieved during construction.

The following elements of the works will constitute hold points for the WSUD tree pits:

- Once drainage connections works for the tree pit have been completed and before backfilling with material (including gravel, sand, soil, structural soil and filter media), ensuring appropriate levels are maintained
- At practical completion of the WSUD raingarden tree pit.

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**C120.08 TYPICAL TREE PIT
PLAN VIEW**



**C120.08 TYPICAL TREE PIT
CROSS SECTION**

