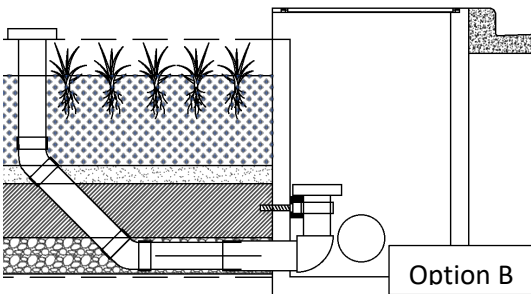


WSUD – Raingarden Outlet Options C120.03



DESIGN STATEMENT

A raingarden outlet enables (filtered) water to flow into piped drainage networks and ultimately waterways downstream of this asset. The invert levels of the outlet and overflow structure determine the amount of water that can be detained and impact the extent of stormwater filtering and pollution reduction that can be achieved.

Merri-Bek City Council raingardens are to be delivered with submerged zones where appropriate.

OPTION A

Typical outlet pit arrangement: Uses a new outlet pit within the raingarden with a riser creating a submerged zone. The crest of overflow pit is to be a minimum of 100mm above the raingarden surface and 50mm below the inlet level/kerb invert. The outlet of this pit shall connect to downstream drainage.

OPTION B

A side entry pit outlet arrangement: Uses an existing side entry pit by positioning the proposed raingarden adjacent to this existing pit. A new outlet point is then broken into this pit at the designed level with an overflow opening sawcut into the existing pit. Similarly, the crest of the overflow pit shall be a minimum of 100mm above the raingarden surface and 50mm below the inlet level/kerb invert.

APPLICABLE LOCATIONS

All raingardens in Merri-Bek municipality.

CROSS-REFERENCE SPECIFICATIONS

- Council technotes C120.01 to C120.07
- Melbourne Water Biofiltration Systems in Development Services Schemes Guidelines (2020).

SPECIFICATION

Option A – Pit lid with galvanised hinged grate.

Option B – Pit lid with composite lid in light grey colour.

SUPPLIER

Option A – Civilmart or similar

Option B – Terra Firma, RS Grating or similar

MAINTENANCE

Key design considerations for easily maintainable raingarden outlets include:

- Avoid blockages in outlet pipes and pits by providing appropriately sized grates and covers
- Outlet pipes should be a minimum 100mm higher than the pit base to allow for debris to accumulate without entering the outlet pipe
- The outlet grate should be hinged for easier access.

Refer to WSUD Design Package, Section 8, Maintenance Checklist.

LEVELS

Ensuring proposed levels are correct through design is critical for optimal raingarden performance. Regarding the outlet it is critical that the crest of the overflow pit is a minimum 100mm above the surface level of the raingarden, as this provides for extended detention. It is also critical that it is at least 50mm lower than the inlet level/invert of the inlet.

Additionally the invert level of the outlet pipe must be sufficiently high enough to allow for a gravity fed connection to downstream drainage infrastructure.

Finally the submerged zone is determined by the distance between the base of the raingarden and the invert of the submerged pipe. See cross sections for more detail.

Overflow levels may be between 100mm and 300mm above the surface level. For further details regarding the drainage layer see tech note WSUD – Soil and Layers C120.05.

CONSTRUCTION SUPERVISION

Construction hold points are important to ensure the levels of the overflow drainage match those specified in the construction plans.

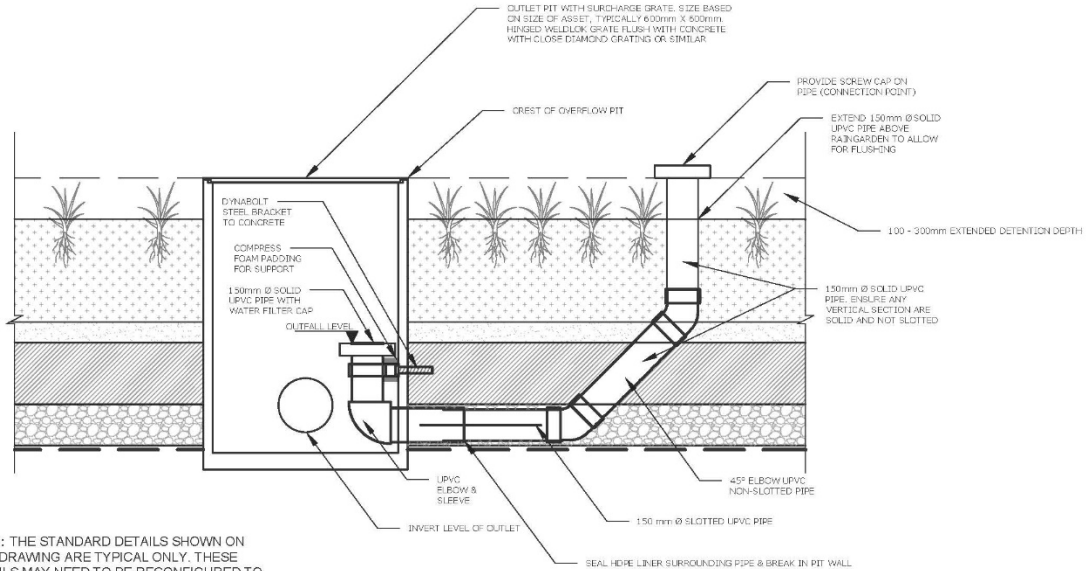
The most important levels within an outlet structure are the crest of the overflow pit, the invert of the outlet pipe and the level of the submerged zone. Construction hold points should be included in the tender documentation and additional works approved when these constructed levels are completed.

Refer cross sections for more detail.

C120.03 WSUD – Raingarden Outlet Options

C120.03 RAINGARDEN OUTLET OPTION A - TYPICAL OUTLET PIT ARRANGEMENT CROSS SECTION

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C120.03 RAINGARDEN OUTLET OPTION B - SIDE ENTRY PIT OUTLET ARRANGEMENT CROSS SECTION

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