SUBMISSION ON ACT WATER SENSITIVE URBAN DESIGN REVIEW 2013

Supplement showing good and poor implementation of water sensitive urban design on road edges

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Implementation of the ACT Water Sensitive Urban Design Code has been patchy and inconsistent, even along the same roadway in new developments.

Example 1: Weston – curb on lower side of one carriageway is broken to allow water to soak into soil whereas curb on other side is continuous and directs water into underground stormwater piping (September 2013)

Example 2: Wright – curb on is continuous and directs water into underground stormwater piping. If the curb had been broken and the adjacent soil level made lower than the road (to create a rain garden), rainwater could have been directed to water adjacent vegetation and the cost of continuous curbing and underground stormwater system avoided. Note that the second picture shows no curbing on the opposite side of the carriageway. (September 2013)

Example 3: Wright – curb is continuous and directs water into underground stormwater piping. If the curb had been broken and the adjacent soil level made lower than the road (to create a rain garden), rainwater could have been directed to water adjacent vegetation (benefitting both vegetation and home occupants) and the cost of continuous curbing and underground stormwater system avoided. (September 2013)

Example 4: Wright – two sides of one street, each with different curbing. Curb on (slightly higher) side of street is broken and directs rainwater to vegetation. Curb on other side of street is continuous and directs water into underground stormwater piping. If the curb had been broken and the adjacent soil level made lower than the road (to create a rain garden), rainwater could have been directed to water adjacent vegetation (benefitting both vegetation and home occupants) and the cost of curbing and underground stormwater system reduced. (September 2013)

Example 5: Wright (John Gorton Drive) – different treatments on opposite edges of dual carriageway median strip. Curb on high side of median strip directs rainwater to swale in median strip; curb on other side of median strip is continuous. (September 2013)

Details of median strip swale without trees

Details of median strip swale with trees, showing how trees are planted. They are planted on raised mounds (presumably to provide the trees with extra drainage) and located at lower end of where water runs into the swale. The picture immediately below shows a tree that is also adjacent to a rainwater pit (presumably connected to underground stormwater pipes).

Example 6: Wright (John Gorton Drive) – differences treatment of water runoff along median strip between main dual carriageway and service road. (September 2013)

6(a) Continuous curbing keeps vegetation above road surface (and water from the road) and directs water into underground pipes. A short distance away the same curbing – and then just the road surface – direct water into the median strip, where it can water vegetation.

Detail of end of curbing and median strip between dual carriageway and service road; note continous curbing on other side of median strip.

6(b) Entry to stormwater system from continuous curb on service street side is in line with higher soil level. Its 'back' side is open at the lower level of the swale on the main carriageway side, presumably to allow for swale overflow. However, the design of the swale and its height relative to the stormwater entry suggest that a lot of rain runs directly into the stormwater system instead of soaking into the ground – as can be seen by the runoff marks in the swale soil.

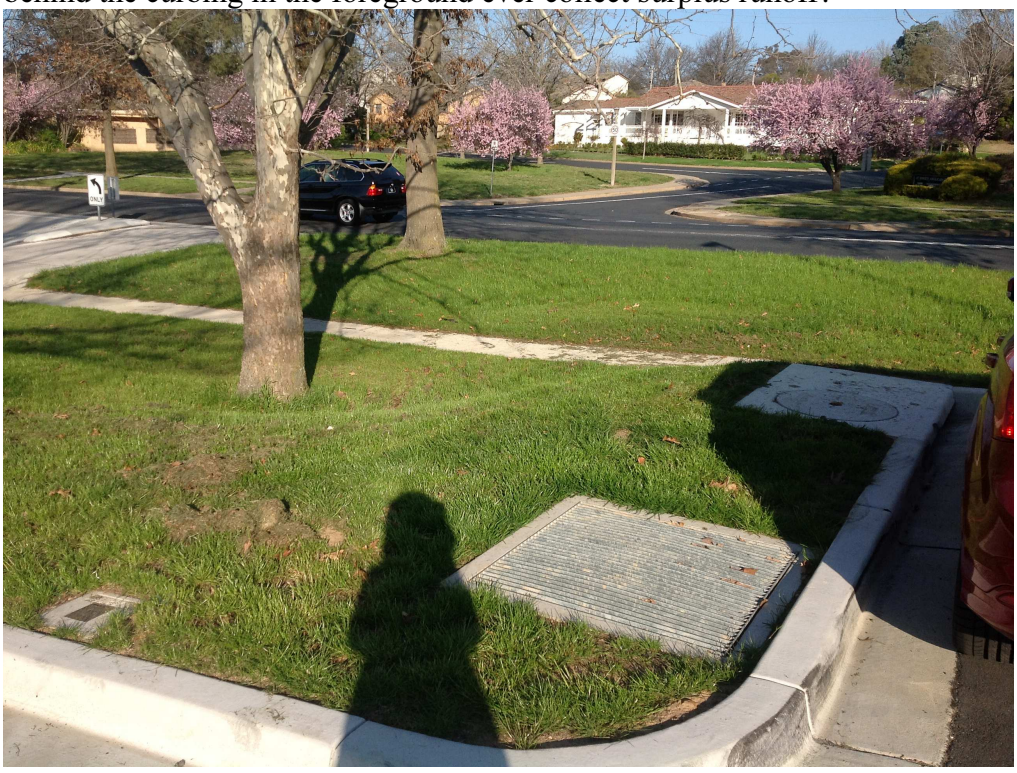
6(c) Continuous curbing along outer edge of service road. The type of planting and mulching suggests the verge has been designed to be water-wise and low maintenance – but it may have been more so (and cost less) if it had been built as a rain garden instead of being raised above the road surface.

6(d) A third type of road edging along the main carriageway. Here, the swale along the road edge is covered with crushed rock, presumably to facilitate water soaking into the soil. The entry to the underground stormwater system from the swale is higher than the crushed rock, allowing it to handle swale overflow only – unlike in example (b). On the other hand, the detail of the construction of the crushed rock surface and its edge with the mulch suggests that there will be some surface wash and the crushed rock will become clogged with finer particles Note the continuous curbing along the service road and end of the median strip.

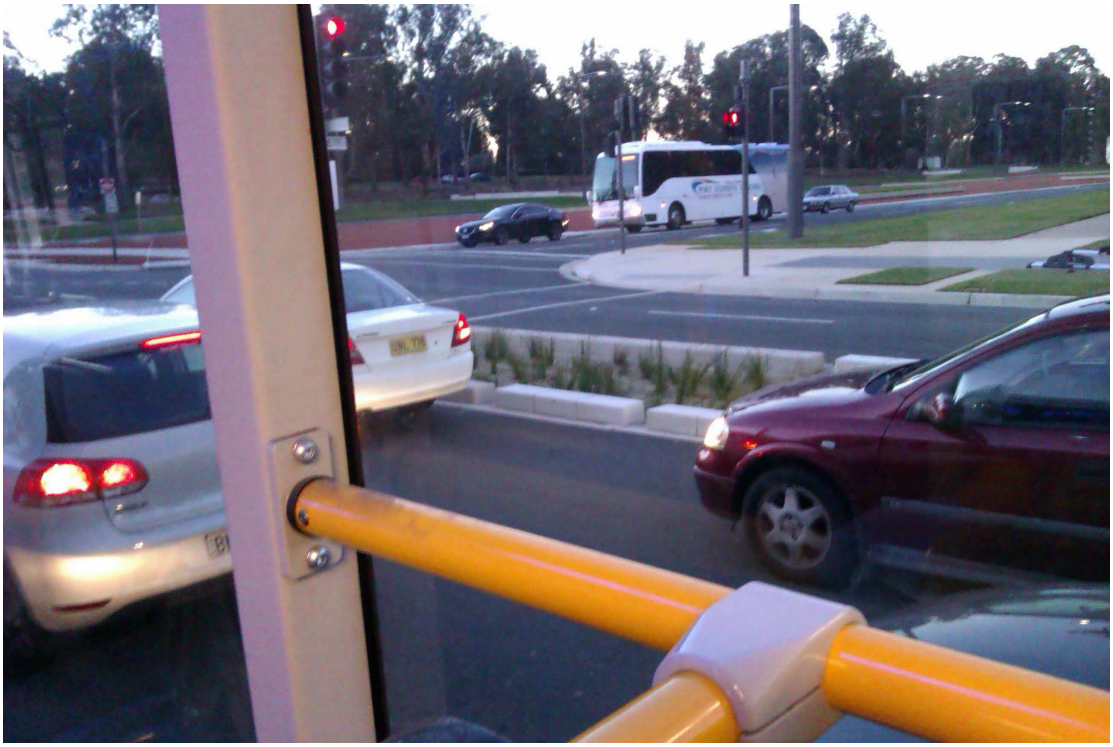
Example 7: Wright – entry to underground stormwater system from nature strip that is lower than the road surface and has broken curbing. This appears to be an attempt at combining water sensitive design with conventional stormwater management. The foreground of the picture suggests that there could be some maintenance issues for residents once they move in. (September 2013)

Example 8: Red Hill (Red Hill Primary School) – carpark constructed in manner that directs water away from trees. This carpark was built above the previous (probably natural) level of the land. It was hard-paved and continuously curbed. These measures rob the existing mature trees of water to which they previously had access via a grass surface. (September 2013)

The continuous curbing feeds rainwater into the underground stormwater system. How much better for the trees and budget would it have been to have broken curbing feeding water to the trees? And how will the very highly-placed stormwater pit behind the curbing in the foreground ever collect surplus runoff?



Example 9: Campbell (Constitution Avenue) – broken curbing allowing rain water to feed into the median strip, which has been constructed as a rain garden lower than the road surface. Similar treatments have been retrofitted to traffic islands in Melbourne (picture from Hampton, City of Bayside has been lost). Note, in contrast, continuous curbing on outer edge of carriageway. (August 2013)



Example 10: Griffith – back yard of new house (in mature suburb) has been lowered then paved in concrete, with water directed to stormwater pits and then to underground stormwater system. There is no provision for water to soak into the ground or in-ground vegetation to moderate the weather on this side of the house. Vegetation on the neighbouring block has lost a lot of its source of water. Similar continuous hard-paving of back yards (but on a much larger scale) is found in other re-developed single dwellings in the suburb.