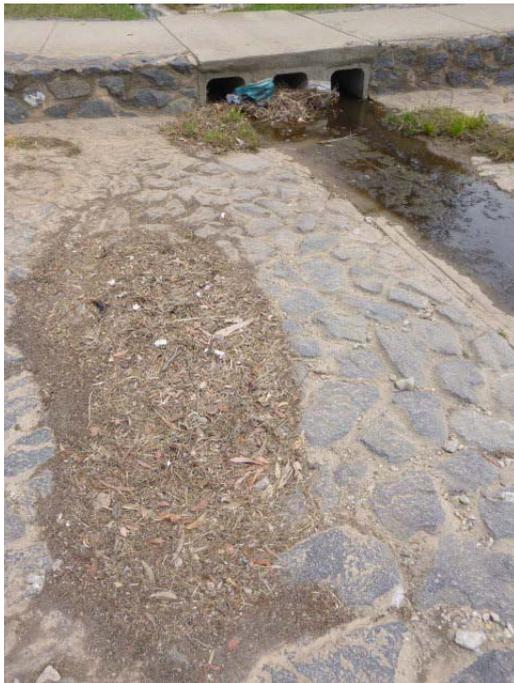


ACTGPT-24a

Address	McGilvray Close, Gordon
Device	Custom GPT
Site Details	Access way off McGilvray Close
Estimated catchment area	-
Device Status at Nov 2014	Operational, device 15% full
Device comments and recommendations	<p>This device seems appropriately sized for the catchment, but its size is unknown. Regardless it would be improved with increased rack size and design</p> <p>Extra set of racks could be installed or one set of racks running along the northern edge of the sediment basin to create a high flow bypass to help avoid already trapped pollution being washed away.</p> <p>Grass cutting around the area should be done with a catcher as grass is being washed down into the rack and this breaks down and sends the GPT anaerobic</p>
Rectification works required	<p>Install new higher racks and high flow bypass</p> <p>Repair erosion damage upstream</p>
Existing maintenance	TBC
Maintenance expectations with rectifications	Quarterly
GPS Coordinates	-
Notes	There is excellent access for cleaning the current trash rack, and plenty of space for further works.



Erosion happening around the concrete low flow dish drain upstream of the GPT



Sediment and organics built up downstream, indicating that certainly some pollution is going through the racks or over them when they block. A high flow bypass would reduce this.



The trash rack could be improved by being made higher and being brought forward in line with the concrete footing to allow the pollution to slide off



Grass cuttings should be removed when cut as they are building up upstream of the sediment basin, and these are known to be a primary source of poor water quality when their breakdown process sends the water anaerobic.

You don't need a catcher everywhere, but you do in your Stormwater conveyances.

ACTGPT-24b

Address	Darcy St, Gordon
Device	Underground GPT
Site Details	Access way off Darcy St
Estimated catchment area	-
Device Status at July 2014	40% full, but virtually non-operational
Device comments and recommendations	<p>The GPT is not large enough to deal with the pollution load from the catchment. This has led to bypassing of sediment and pollution and vegetation as grown through this. There are large amounts of vegetation growth downstream of the rack and this is causing a significant backwater and hydraulic problem for the device.</p> <p>Pollution can be seen downstream, this is bypassing for a combination of reasons.</p> <p>The GPT is too small and the racks are too low. The downstream area has been neglected and is reducing the GPT's efficiency to a maximum of 5%. The downstream area must be cleaned immediately.</p>
Rectification works required	<p>Downstream vegetation and sediment cleared.</p> <p>Clearing out downstream to allow water to flow.</p> <p>Install new racks to increase treatment area.</p> <p>Option to install a GPT using the existing chamber, or amplify or modify the existing trap.</p>
Existing maintenance	TBC
Maintenance expectations with rectifications	Quarterly cleaning (possibly monthly)
GPS Coordinates	-
Notes	There is excellent access for cleaning the current device, and plenty of space for further works.



Vegetation growth blocking the outlet from the device. This is causing issues with the flow and allowing pollution to bypass the trash rack.



You can see that vegetation has grown to above the height of the trash rack this is causing bypass in low flow conditions. With the racks practically submerged, it could be that the galvanized racks will need replacing.



The downstream area is completely overgrown but there is lots of space around the chamber for maintenance and additional works



Pollution and scum on top of the water downstream. A GPT retrofitted would reduce this issue.

ACTGPT-25

Address	Terry Connolly St, Coombs
Device	Trash Rack
Site Details	Access is currently part of development site, Terry Connolly St
Estimated catchment area	-
Estimated annual catchment pollutant volume	-
Device Status at Nov 2014	Non-operational, device 300% full
Device comments and recommendations	<p>The device is too small for the area and volume of pollution coming in. It's impossible to tell if this device is just a trashrack, or there is a sediment basin in front of it. With construction works around the area, erosion is happening on a large scale and sediment build up in the area in front of the racks has built up to above the rack height.</p> <p>There is clear bypass and pollution downstream as well as sedimentation in the pond. Erosion has occurred on the site and along the banks. Current rack aperture is 110mm which is too big as it will not stop common floatable such as PET bottles. This device should never have been approved.</p> <p>There is a CDS unit on site (a very high performance GPT) but it cannot be determined if it is functional because there does not appear to be an outlet from it.</p> <p>The trashrack should be decommissioned and a large effective GPT installed that can trap and retain the pollution installed. Perhaps another CDS Unit.</p> <p>The gabian baskets which have been added for erosion control are getting full of bypassed pollution and looking ugly. There is also a massive plume of sediment down the northern side where the bypass flow has been going.</p>
Rectification works required	<p>Report the issue to the EPA</p> <p>Clean out the very large volume of sediment</p> <p>Dredge the pond for the first 25m to remove the bypassed sediment and debris</p> <p>Decommission the trashrack and install an appropriate GPT</p>
Existing maintenance	Seemingly none
Maintenance expectations	TBC, depends on solution

with rectifications	
GPS Coordinates	-
Notes	There is currently no public access to the site, but that does not mean the device can be neglected.



Upstream of trash rack showing where the low flow can bypass the device on the left during cleaning. A hay bale has been placed there over the inlet to this. But note the massive buildup of sediments all over the place, plus blockage on the fencing. This design is flawed based on functionality as well as cleanability.



Build up in the pond of sediment that has gone down the low flow bypass for cleaning.



Gabion baskets collecting pollution



Vegetation and sediment behind the trash rack.

It has been there in bypass for so long it's now alive and growing.

The rack spacing is so wide (110mm) its takes vegetation to block on it, so other pollutants can block on the vegetation. This rack doesn't meet any standard or guideline.



Sediment build-up in the pond downstream of the trash rack. This now needs to be dredged.



Pollution and rubbish caught on the upstream fence are sending flows into low flow bypass.
This is the worst design of a trashrack ever seen by this auditor.

In the foreground, water is pooled by the 500mm of sediment that is built up to a height equal to the top of the trashrack. There may or may not be a sediment sump in front of the trashrack, it's not possible to tell.



Sediment build-up above trash rack height.



Trash rack overgrown and non-operational



Sediment basin or just an access to the trashrack; there is so much sediment here due to lack of cleaning that it is impossible to tell.



A CDS unit will be used to treat some of the development. This device was not monitored, but there was no point. If the trashrack is in neglect, and the CDS unit is 20 times more efficient, it will be non-operational as well.

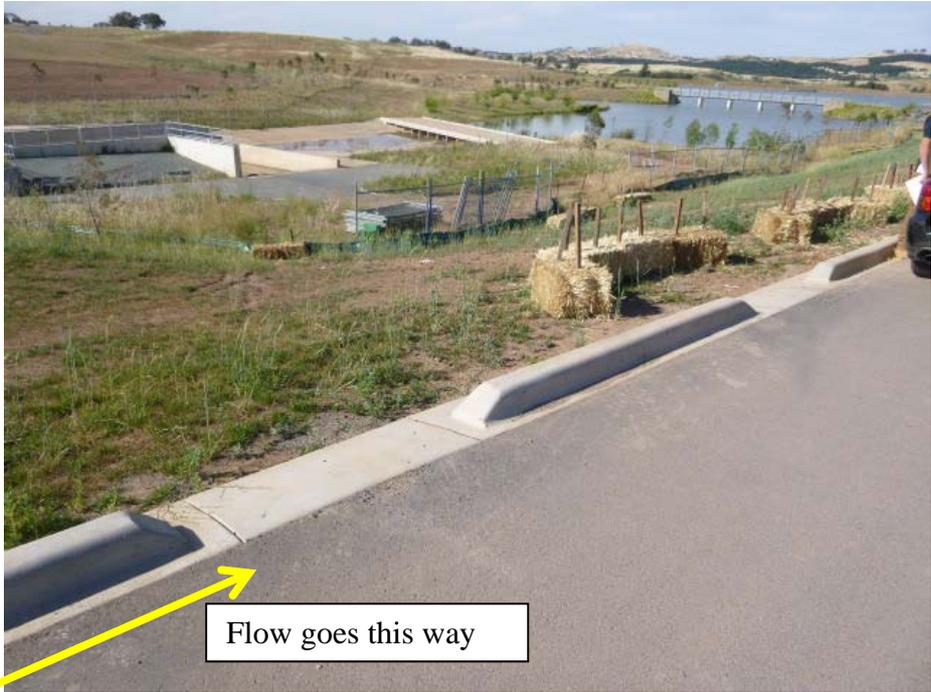


Upstream flow bypassing the trash rack. The sediment loads are massive due to poor erosion control on the development and upstream.

ACTGPT-26

Address	Edgeworth Parade, Coombs
Device	Major GPT
Site Details	Access is off Edgeworth Parade
Estimated catchment area	-
Device Status at July 2014	Operational, device 20% full
Device comments and recommendations	<p>The device appears to be large enough but there are flaws with the design. With works around the area, erosion is happening on a large scale and sediment build up is appearing both up and downstream of the trash rack. There is clear bypass and pollution downstream as well as sedimentation in the pond. Erosion has occurred on the site and along the banks, and on the access to the drying pad.</p> <p>Due to silt fencing around the upstream fencing almost permanent bypass in happening, therefore completely negating the point of the trash rack.</p>
Rectification works required	<p>Cleanup of banks and surrounding areas</p> <p>Fix erosion of drying area</p> <p>Fabricate and fit new racks that have a spacing to at least capture PET bottles</p> <p>Consider methods to trap more pollution and retain more pollution within the existing structure such as a boom, and submerged racks</p>
Existing maintenance	TBC (possibly none)
Maintenance expectations with rectifications	Regardless of how full it is, this device should be cleaned at least twice per year. Water could be pumped upstream to the detention basin and allowed to flow through the CDS and little bioretention basin
GPS Coordinates	-
Notes	<p>The site is not open to the public yet. There is a large parking/turning area and a large drying area, although this is being eroded away.</p> <p>On the hill treating runoff from the development is a P1512 CDS unit and diversion chamber but it's non-operational. There is also a bioretention system to polish water after the CDS unit, and it's not getting the water it should either. The CDS unit diversion needs cleaning, the low flow bypass is buried, and there are sandbags over</p>

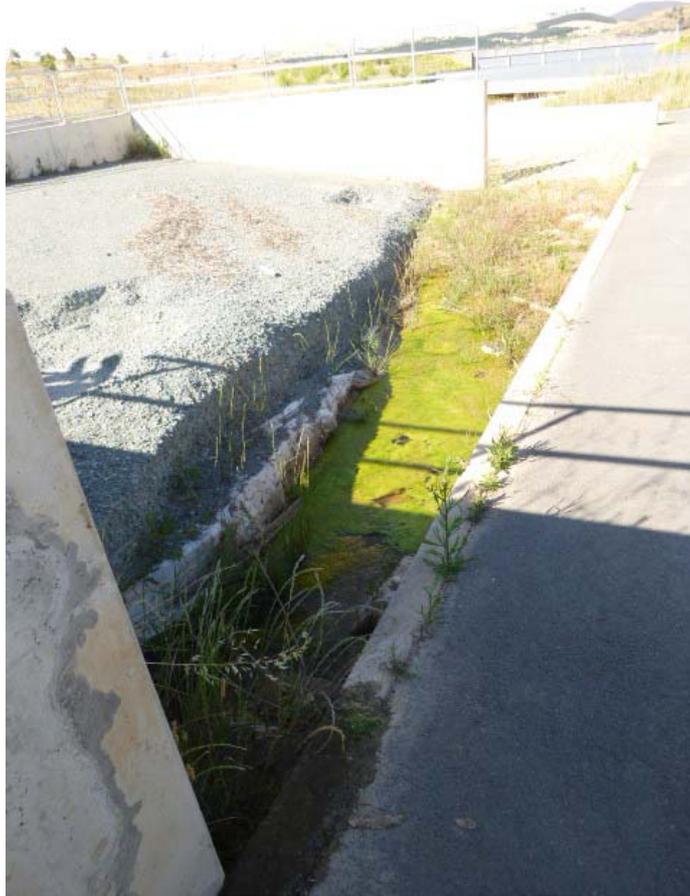
the inlet forcing the Stormwater to bypass treatment and go straight to the lakes. The internals of the CDS unit have not been fixed in place correctly.



The kerb is designed to allow water to run off in a diffuse way, yet discourage drivers from taking a vehicle down the embankment. However, the hay bale placement is poor.



Drying pad at site, the nearest edge is being eroded away



Massive erosion due to a design oversight. This should be fixed as soon as possible to prevent any further erosion.



Downstream of trash rack



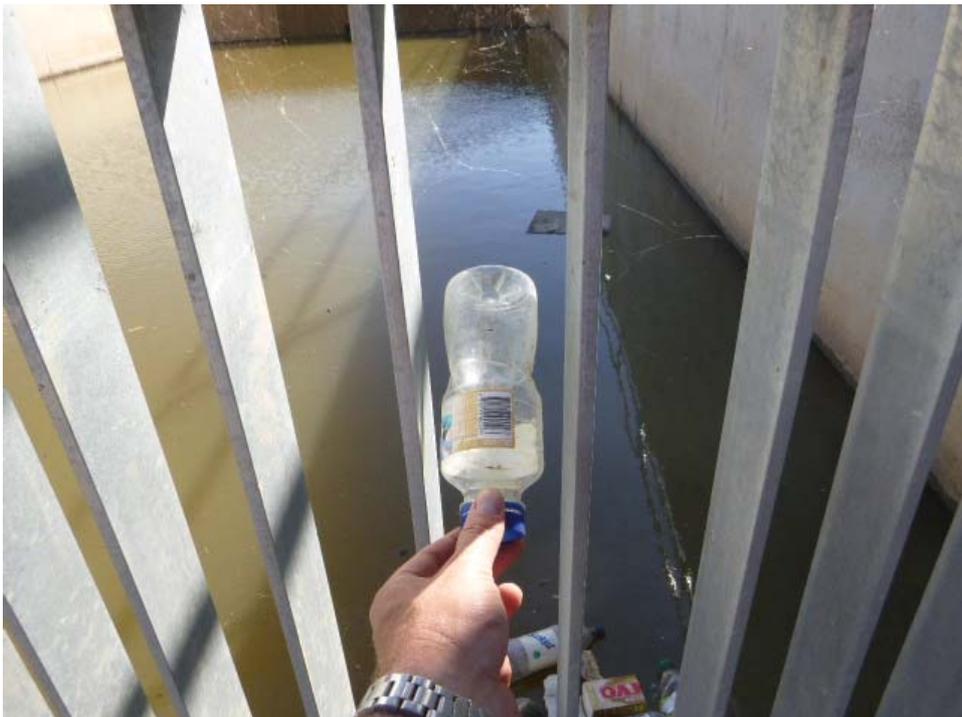
Trash rack and sediment basin



The low flow bypass is silted up and the silt fencing on the site fencing is directing water around the GPT



The wire fence beside the GPT is collecting pollution when the device bypasses



Aperture of the bars is too wide



Access to the sediment basin and trashrack. Drying area on the left.



The rocks set into concrete are doing a good job of erosion control and energy dissipation. However, with no upstream treatment, the whole area is filling with sediment and litter. A new CDS unit should be designed and installed upstream of this outlet near the road.



Pipe outlets with rocky open channels downstream become a safety issue for cleaners and local kids alike. There is a good location upstream for a CDS unit to treat both lines.



Large sediment basin upstream of trash rack. It's unclear what the plan is when it's dewatered. For this purpose a very large heavily grassed area should be created to the side.



Silt fencing on the site fencing. Not clear as to why.



Inside CDS unit chamber showing sediment build up in the pipe upstream



More sediment built up inside the diversion chamber. The low flow bypass was deliberately blocked but it was not installed correctly and will be a huge problem for the flow during operation. The PVC piping in there is not part of the solution. The yellow arrow shows you the flow direction if the inlet hadn't been sandbagged over.



CDS Unit lid



Bio-retention basin downstream of CDS unit

ACTGPT-27a

Address	Yerrabi Pond, Amaroo
Device	Trash Rack
Site Details	At end of cul-de-sac, Acraman Pl
Estimated catchment area	
Device Status at Nov 2014	Operational, device 5% full
Device comments	The device has enough storage and seems to be working fine. If anything the device is oversized for the catchment area. Downstream of the device could do with a small tidy up and some maintenance.
Rectification works required	Nil
Existing maintenance	TBC
Maintenance expectations with rectifications	No rectifications expected.
GPS Coordinates	-33.8917653505, 150.995627258
Notes	



Inside chamber. There is plenty of storage in the chamber.



Site is tidy and has plenty of room around it.



The racks are well sized for the amount of pollution and are of an appropriate size and design.

ACTGPT-27b

Address	Yerrabi Pond, Amaroo
Device	Trash Rack
Site Details	At end of cul-de-sac, Styx Pl
Estimated catchment area	
Device Status at Nov 2014	Operational, device 5% full
Device comments	The device has enough storage and seems to be working fine. If anything the device is oversized for the catchment area. Downstream of the device could do with a small tidy up and some maintenance.
Rectification works required	Nil
Existing maintenance	TBC
Maintenance expectations with rectifications	No rectifications expected.
GPS Coordinates	-33.8917653505, 150.995627258
Notes	



There is only a small inlet so the trash rack and basin is adequately sized.



The site has good access for cleaning and maintenance



The trash rack is working well and there are no clear signs of bypass.

This device is fine for pollution, but open and relatively unattractive. A discrete underground device such as a Humegard or CDS unit would cost a lot less, and be twice as effective.

ACTGPT-27c

Address	Yerrabi Pond, Amaroo
Device	Minor GPT
Site Details	Off Bizant St, opp No.19
Estimated catchment area	
Device Status at Nov 2014	Operational, device 10% full
Device comments	<p>The device does not have enough storage and is not the best design for the area. The racks should be bigger, but there is not much room in the chamber. There are signs of bypass and sediment build-up, showing this is not the correct GPT for the situation.</p> <p>The racks should be brought forward so they self-clean, and be made bigger if possible.</p> <p>A CDS unit retrofitted to use the existing chamber would be the best option as this would take out a lot of the pollution going through this system, including sediments and organics which would otherwise bypass the trash rack.</p> <p>An access hatch should also be added to make inspections easier.</p>
Rectification works required	<p>Racks brought forward and made higher.</p> <p>Access Hatch installed</p> <p>Retrofit GPT into chamber that is better suited to the pollution load</p>
Existing maintenance	TBC
Maintenance expectations with rectifications	Quarterly
GPS Coordinates	
Notes	Not the best device audited, but far from the worst. This one would be low on the rectification list.



The site is large and has plenty of room for maintenance and additional works.



The racks are not catching sediment and organics which are some of the contributors to poor water quality downstream.

There is some evidence of bypassing, and the racks could be better with a smaller aperture. Perhaps a second row of smaller aperture racks could be trialed.

ACTGPT-27d

Address	Yerrabi Pond, Amaroo
Device	2 GPTs with combined outflow to pond
Site Details	Off Benaroon Cct, opp No.29
Estimated catchment area	
Device Status at Nov 2014	Operational, device 50% full
Device comments	<p>The devices do not have enough storage and are not the best design for the area. A GPT retrofitted would allow capture of sediments and organics which otherwise bypass the trashrack.</p> <p>The racks are not in line with the concrete footing so pollution gets caught on them and they block easily. Tide marks show they fill up and remain that way for a while.</p> <p>This is a site with 2 fairly large chambers and small racks but does not have that much incoming flow from the area so may not need to be upgraded apart from smaller scale improvements.</p>
Rectification works required	<p>Bring racks forward of concrete footing and install higher racks</p> <p>Retrofit GPT which is better designed to remove pollution</p> <p>Vegetation removal downstream</p>
Existing maintenance	TBC
Maintenance expectations with rectifications	Quarterly cleaning
GPS Coordinates	
Notes	Large area with good access to site for maintenance and/or upgrading works.



Sediment and organics bypassing the rack



The two underground trash rack chambers could be combined and replaced with a single, better suited GPT



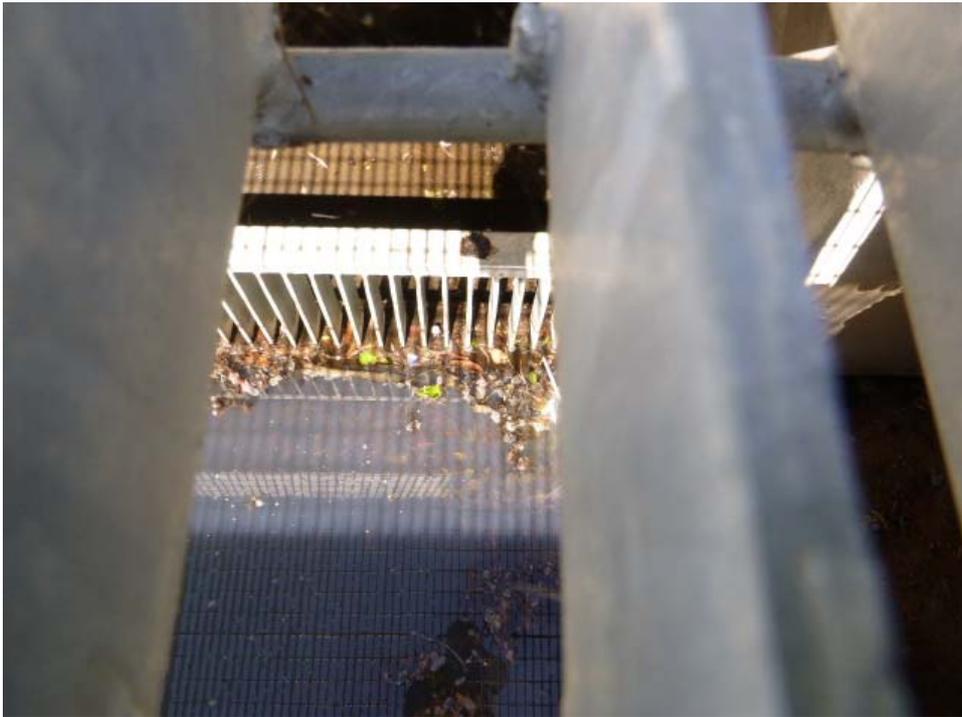
Outlets into the pond. Some vegetation removal required.

ACTGPT-27e

Address	Yerrabi Pond, Amaroo
Device	Trash Rack
Site Details	Off Strayleaf Cres, opp No.29
Estimated catchment area	
Device Status at Nov 2014	Operational, device 60% full
Device comments in relation to catchment area and pollutant volume	This device does not appear to be appropriately sized for easy capture, retention, cleaning and removal of pollutants.
Device comments	<p>The device does not have enough storage and is not the best design for the area. There is sediment build up inside the chamber. It could be improved by bringing the existing trash racks forward, in line with the concrete footing, and making them higher if possible.</p> <p>A different GPT unit retrofitted to use existing chamber could work better to remove more organics and sediment.</p>
Rectification works required	Move racks forward, raise end racks
Existing maintenance	TBC
Maintenance expectations with rectifications	Quarterly
GPS Coordinates	
Notes	<p>Floatables from the entire lake collects in one corner with the prevailing wind. For ease of cleaning, a footpath should be added.</p> <p>The lake edge should be cleaned when the GPT is cleaned, or even more regularly.</p>



Site around the chamber has plenty of room.



Sediment build-up inside chamber.



Floatables and organics collect in corners of the lake. This is determined by the prevailing wind, but a walkway around the edge or a floating boom would aid collection.

ACTGPT-28

Address	Sullivan’s Creek, Barry Drive, Turner
Device	Custom very large GPT
Site Details	Access via North Oval, off McCaughey St
Estimated catchment area	
Device Status at Nov 2014	Operational, device 0% full (audited on day of cleaning)
Device comments and recommendations	<p>This device is appropriately sized for the catchment and channel. It may be the oldest GPT in Canberra but it still has a lot of merit. The site has excellent access and all existing structures seem sound. Current issues lie with the de-watering upstream, racks filling and bypassing, and the dewatering of the GPT for cleaning.</p> <p>A polymer weir could be fabricated to replace current straw bales being used downstream when de-watering, since these are not working properly</p> <p>An offline sump to pump water around the site while de-watering and cleaning could be an option upstream in the open channel. This could replace the need build a temporary dam.</p> <p>More racks could be added to increase the treatment area. There is plenty of room for numerous layers of racks. A bypass channel should also be looked at for high flows to assist with pollution retention.</p> <p>The site clearly collects a lot of pollution and, with some modifications its performance could be significantly increased. More frequent cleaning would also help performance and maximize retention.</p> <p>We had several hours at the site, speaking directly with the cleaning contractors.</p>
Rectification works required	<p>To be discussed.</p> <ul style="list-style-type: none"> • Upstream low flow bypass required to facilitate cleaning • Downstream dewatering solution needs improvement • High flow bypass to minimize overtopping and loss • Additional racks for screening and retention baffles
Maintenance expectations with rectifications	The maintenance contractors were excellent. They were helpful and responsive and knew their stuff. This GPT has the potential for re-suspension and loss, as well as going anaerobic and producing odours in a central city location. Cleaning should be done quarterly.

GPS Coordinates	
Notes	Maintenance currently takes 2 days due to pumping water.



The drying area for GPT pollution is shared with the waste from street sweepers. The very end of this area would make a logical location from which to install a pumped bypass for low flows during the maintenance process. It would need to be completely shielded from flows during normal times, and only be opened up for pumping low flows at cleaning.



At present the cleaners are forced to create a temporary dam using spoil from somewhere. At the end of the cleaning, most of this is washed into the GPT and has to be removed as part of the following clean. This technique is resource intensive and not a good long-term solution to low flow bypass.



Cleaning taking place in front of the racks.



Cleaning is quick and fairly easy, with good vehicle access.
If extra racks were added, they would require some sections to be removable (with the backhoe) but it would also trap and retain a lot more pollution.



Bobcat and backhoe both working on pollution removal. The bobcat cleared the pollution up against the plinth, and the backhoe cleared the pollution off the plinth.



Pollution upstream of trash rack. Needles can be seen and other larger items. The massive energy dissipation vertical columns are a strange design. Whilst they would not do a lot, they are not causing any problems and machinery can still drive around them to get up into the channel (where pollution also deposits).



De-watering taking place in the “sediment sump area” behind the trash rack, this currently takes an entire day before cleaning can take place. A large portable pump and a smaller suction pump are brought in to pump down the structure.



Currently this water is pumped down into a straw bale check dam to filter out any silts. Straw is not good at trapping silts, and gaps of over 100mm on the sides basically allow the water to escape untreated.

A reusable weir that was easy to clean would be a much more appropriate. It could be covered with a geofabric if desired and brushed clean as need be. It could be stored onsite (if done correctly) and reused with ease each time with no need to buy and dispose of straw bales.



De-watering towards the hay bale boom.



Sediment being placed in the drying area. This is a great feature.

ACT GPT-29

Address	Flemington Rd, Mitchell
Device	GPT
Site Details	Access is off Flemington Rd NB, 300m past Randwick Rd
Estimated catchment area	
Estimated annual catchment pollutant volume	
Device Status at Nov 2014	Operational, device 40% full
Device comments and recommendations	<p>The device is large enough but there are improvements possible.</p> <p>The boom is defunct and should be replaced and relocated to lie diagonally across the sediment basin to direct floatables to the large collection area.</p> <p>A second row of racks could be added.</p> <p>A side channel or high flow bypass could be added to minimize pollution loss in high flow events.</p>
Rectification works required	<p>Replace Boom</p> <p>Add extra racks</p> <p>Create highflow bypass channel on the western bank</p>
Existing maintenance	TBC
Maintenance expectations with rectifications	This device could be expected to require cleaning every 6 months, but monthly inspections should still be undertaken.
GPS Coordinates	
Notes	Site access is good with plenty of room for improvements on existing structure. It's a good site for a GPT.