Section	Issue	Relief Sought
Section 2.2.2 Strategic objectives		
Objective 3	Does not recognise potential for changes in hydrology to impact on ecological values	Change wording to: "manage discharges so as to avoid adverse effects on river channel stability, aquatic life supporting capacity and protect and enhance natural flow regimes in waterways"
Stormwater soakage	The plan is generally negative regarding the potential for stormwater soakage even though it appears viable at least in some locations.	Greater emphasis on soakage as a solution where appropriate
Section 3.1.8 Ecological values	Some additional information is now available to support this section	Note additional recent work: Valler TL 2013. Sources and effects of catchment-derived bioavailable contaminants in Hamilton urban streams. Unpubl. MSc thesis, University of Waikato, Hamilton. Clearwater S.J.; Valler T. 2012. Contaminants in Hamilton's urban stream sediments and ecotoxicity to amphipods. Waikato Regional Council Technical Report 2012/38. http://www.waikatoregion.govt.nz/PageFiles/23731/TR201238.pdf
	The Mangakotukutuku gully and its connection with the river also provide important feeding opportunities for bats, and certain trees are important for roosting and as nursery areas. Although this area wasn't surveyed in the recent assessment of bats (http://www.streamcare.org.nz/Hamilton_City_Bat_Survey_Report.pdf), monitoring has been carried out and there appears to be a significfant bat population in the area.	This section should also acknowledge the significance of the gullies and large trees for native bats and incorporate appropriate requirements to retain key roosting/nursery trees, enhance bat habitat as mitigation where adverse effects are likely, and provide a lighting environment that will not deter bats (e.g., downward-facing street lights)
Inanga	The list of threatened fish species does not include inanga (*Galaxias maculates*) which is known to be present	Include inanga in the list of threatened fish species described as being present
Fish Passage	There is no consideration of the need to optimise fish passage through any culverts or similar structures	Include a requirement that all culverts or similar structures are designed so as to optimise the

		upstream and downstream passage of native fish.
3.2.2 Ecology		
Urbanisation leading to nutrient reductions	We don't believe that the shift from existing land uses to urban residential will necessarily result in a decrease in nutrient loading to the stream. Current land uses are not very intensive and garden fertilisers and other urban chemicals will provide a new source of nutrients	Remove sentence "Replacing agricultural land with urban development could help reduce the passage of nutrients into watercourses"
Urbanisation could have impacts on drainage patterns, impervious loading and aquatic and wetland habitats	We believe that this is certainty rather than a possibility and that there is sufficient evidence to demonstrate	Amend wording to say that "Urbanisation will…"
3.3.1 Stormwater quantity effects		
Assertion that it is only peak flows that cause increased erosion (also made in Section 3.4.1)	The hydrological effect is the increased frequency/magnitude of small-to-moderate flood events which are retained in the channel - refer to Walsh publication http://freshwater.canberra.edu.au/Publications.nsf/0/4a9e84f78d24cc28ca256f71000073a1/$FILE/Urban_Stormwater_14%3D2.pdf	Amend wording to recognise that changes to small-to-moderate floods kept within the banks have the greatest potential effect on bank erosion
Appropriate stormwater management can avoid or mitigate changes to stormwater quantity	Limits on the scale and types of development are also likely to be needed to fully avoid or mitigate these effects	Insert reference to limiting the scale and type of urban development allowed.
Effects of increased stormwater discharges	The list of effects does not include the potential for increased flows to cause incision of the channel that may result in drying out of gully floor wetlands.	Include channel incision and impacts on gully floor wetland hydrology in list of potential impacts
Section 3.3.2 Stormwater Quality Effects		
Description of effects	The list of potential effects on ecological values is not complete	Include the following effects Contamination to cause mortality of invertebrates as well as fish Indirect effects of contamination on aquatic food

		webs and ecosystem function Increased potential for invasion by exotic species like gambusia into wet ponds. Increases in suspended sediment and sediment-borne contaminants (e.g., metals, PAHs) Potential for increases in stormwater discharge temperatures from wet-ponds
Section 3.4.3		
Construction works should be prohibited from the riparian corridor	We support this recommendation but suggest that "riparian corridor" be defined to avoid any confusion. Our reading is that it extends from the stream edge to the upper edge of the gully.	Define what the Riparian Corridor is. Include a cross-sectional diagram showing this to avoid any confusion
Section 4.2 Key Stakeholders		
List of stakeholders identified	This list did not include Mangakotukutuku Puna Koiora Trust	Consider the inclusion of the trust in consultation
Section 4.3 Summary of key issues identified		
Summary of issues identified by MSCG	The description of the group's issues does not include concerns regarding changes to stormwater quantity	Amend wording to bullet point three to include stormwater quantity
Section 5.1 Environmental objectives		
Maintain or enhance stormwater discharge quantity	Given that there is little stormwater currently entering the Peacocke Branch of the Mangakotukutuku Stream the focus should be on maintaining stream quality rather than stormwater quality	Amend wording to maintain or enhance stream water quality
	Water quality objectives are two narrow and should include other contaminants including metals, metalloids and PAHs	Amend wording to include these contaminants
Minimise alterations to natural flow regime	We are not satisfied that TP10 will provide the appropriate level of protection of instream values as it has never been tested	The onus be placed on the developer to demonstrate that no adverse environmental effects results from their actions rather than relying on unproven default guidelines.
	In our view the energy dissipation devises and erosion protection should be installed outside of natural channels to protect their structure	Add "outside of natural stream channels to the end of point c)

Utilise water sensitive practices	We fully support the adoption of water sensitive practices and particularly their use to set the Peacocke Stage 1 area as a benchmark for development.	None sought
Section 6.1.1	The hydrological effect is the increased frequency/magnitude of small-to-moderate flood events which are retained in the channel - refer to Walsh publication http://freshwater.canberra.edu.au/Publications.nsf/0/4a9e84f78d24cc28ca256f71000073a1/$FILE/Urban_Stormwater_14%3D2.pdf	Amend wording to recognise that changes to small-to-moderate floods kept within the banks have the greatest potential effect on bank erosion
Table 6.3	Zinc from roofing and fencing, copper from garden spray. and pesticides from gardening can also leach into streams	Include zinc, copper and insecticides in table
Section 6.1.2, p.56, para. 2	Good to see this increased in recognition of ecological values. Support more stringent requirements than TP10 given that its ecological effectiveness is unproven	None sought, although we note the value adopted here is arbitrary
Section 6.2.1B	Impervious are effects on stream ecology are not linear - threshold for adverse effects is typically 5-10% connected impervious area - beyond this ecological condition declines rapidly	Reword to read: Effective impervious area >5-10%, where stormwater is directly connected to stream channels, represents the threshold beyond which significant adverse effects on stream ecology occur.
	Developers need to do more that “consider: ways to reduce impervious area. The current wording enables them to easily worm out of taking action.	Reword to read: …developers shall implement methods of reducing impervious area…(in keeping with the requirements on p.60 J, last paragraph)
p.58, final paragraph	Why is this so hard? - provide financial incentives for installation and proper maintenance of rain gardens and other on-site treatment options (ditto for last paragraph on p.59)	Council explore the option of an “impervious area tax” and financial incentives to encourage land owners and developers to implement on-site stormwater treatment options
p.60 K	Springs and seepages provide important habitat for aquatic biodiversity. It is important the wetland creation does not dam or compromise the integrity of these habitats	Ensure springs and seepages under shade aren't dammed to create wetlands (i.e., grassed and heavily sediment seeps are ok to dam but not those under shade)
p.61 L	Catchpit filters can help remove sediment borne contaminants and are a useful addition to other stormwater treatment options	Make catchpit filters mandatory where any stormwater does not receive wetland treatment, and make them recommended generally to remove sediment borne contaminants and thereby extend the

		treatment capacity of wetlands for downstream treatment. An innovative catchpit filter has been used with success in Auckland.
p.60 O & P	We support the ban on zinc and the requirement for soil rehabilitation	None sought
Section 6.2.2 #2	How will meeting the 85% removal be enforced?	Require monitoring of removal efficiency and reporting on selected wetlands to ensure this target is adhered to.
p.64, bullet #5	More guidance needs to be provided on how to determine whether at-source treatment options for road runoff is a feasible solution so developers aren't given an easy option of doing something else. There needs to be a penalty for less desirable second choice options to encourage this	Provide guidance on how to determine the feasibility of at-source treatment and impose a financial incentive to encourage this option (impervious area tax etc).
p.64, At source treatment options for individual house lots, bullet #7	Impervious pavers are also an option for reducing impervious area	Add in impervious pavers
	At source avoidance	To avoid roof cleaning chemicals entering water require that roof down pipes have provision to divert to land if there is no infiltration system in place.
p.65, 4 Wetlands, para. 2	Note this should be Appendix G – also note 1B appears to be on the main channel. In-line treatment should not be permitted. Note that wetlands should not dam seepages or springs that currently have vegetation cover as these can harbour high ecological values	Amend appendix number and remove wetland schematic from main channel. Insert advice that vegetated springs and seeps should not be dammed.
p.66, #6, bullet #1	What does "riparian" mean in this context? Is it all gully floor vegetation and include that around springs and seepages - it should	Define "riparian" (see above) and include spring and seepage areas in this.
p.66, #6, bullet #2	No riparian maps are included in the Appendix	Correct appendix
Table 6-6	Recent work indicates that small-to-moderate sized storms are important in terms of their effects on stream ecology in urban environments (see above)	Indicate how BPOs perform for small-to-moderate-sized storms
Table 6-7	These scenarios provide strong support for Developed scenario 2 - 35% of lots and all roads with rain gardens, so why is this not being required?	On the basis of the evidence available, make Developed scenario 2 the minimum level acceptable for the Stage I development

Section 6-3	Could also include construction of fish habitat refugia where stormwater mitigation measures are not considered adequate, and maintenance of fish passage past any stormwater infrastructure, although this should not occur within stream channels	Consider instream fish habitat enhancement as a mitigation option
Section 8 Monitoring		
Monitoring of builds	Once subdivisions have been completed there is still a risk of stormwater contamination to occur during the building construction process. There are examples in the north of Hamilton where stormwater detention ponds have been compromised by sedimentation that has occurred after the subdivision infrastructure has been completed. Adequate monitoring of the building phase is important to reducing this risk	Specifically list monitoring the compliance of building construction within the monitoring programme
Monitoring	There is no detail of the ecological, hydraulic or stream morphological monitoring. An important effect of altered hydrology is channel incision and widening, leading to destabilised stream banks It is important that this is identified now so that we comment on it and HC can budget for it and get the baseline monitoring done.	Expand monitoring requirements to include measurement of channel widths and bed levels to determine any channel degradation/incision
Robust performance management	It is not clear that there is a measurement and reporting framework in place. What will success look like? What are the: indicators, measurement, reporting and feedback loop? What contingency planning/mitigation measures are in place if adverse effects do arise?	Develop a clear reporting and contingency planning pathway
p.80, bullet #1	On-line stormwater treatment (e.g., detention devices within stream channels etc) should not be permitted	Delete reference to online stormwater detention