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Peacockes Area Urban Strategy - feedback on behalf of the Mangakotukutuku Streamcare Group

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Main Points

- The Peacocke's branch of Mangakotukutuku Stream (referred to here as Peacocke's Stream) is a sensitive receiving environment with high bodiversity and ecological values compared to other streams within and around Hamilton City.
- We expect to loose most of these values if impervious areas are allowed to exceed 15% of the catchment.
- The Peakcockes development offers the opportunity to create a low density sustainable suburb.
- Stormwater management that employs the stream to intercept contaminants and peak flows (e.g. online ponds) will fail to protect this sensitive receiving environment. Headwater streams do not have the same dilution and assimilation capacity as the Waikato River. We see control at source to be the best form of stormwater management. Any end-of-pipe systems need to be located before the stream.
- Roading needs to avoid in-filling of side tributaries.
- Stream crossings should be bridged rather than culverted to protect fish passage.

Values of Peacocke's Stream

- The Peacocke's Stream is the most diverse and ecologically significant stream in the Mangakotukutuku catchment and indeed in Hamilton City. We are confident of this because, between us, we have sampled every major stream in the city. There are good numbers of giant kokopu, a threatened species of fish, found in shaded parts of the Peacocke's Stream. This is the fish that features on stormwater grates (cast in metal) and is an icon species for freshwater ecosystems in our city. The invertebrate fauna in most Hamilton streams is depauperate, due to natural peat runoff coupled with the effects of farm runoff, stormwater inputs and associated pollutants and habitat modification. In the absence of urban stormwater inputs, the invertebrates in the Peacocke's Stream are extremely diverse by comparison, and include mayflies, caddisflies and abundant koura (freshwater crayfish).
- Many of these animals will not tolerate urban stormwater. We have not caught koura in any streams with fully-urbanised catchments in Hamilton, and they seem to persist only in streams with low levels of urban influence, such as the Mangakotukutuku (and only in the least developed urban streams in Auckland). Elsewhere they will die out or move away if habitat such as sunken logs, tree roots or overhead shade is lost. Poorly planned urban development could do serious ecological damage to Peacocke's Stream.

Density of urban development and stormwater management

- Impervious area exceeding 10% to 15% is the threshold above which ecological degradation occurs in sensitive streams receiving stormwater inputs. The best way of maintaining the ecological values of this stream is through low density development, such as lifestyle blocks, that use low impact design.
- There are arguments for condensing development into smaller areas. Arguments for this unfortunately amount to writing off a lot of ecosystems where development does take place. Because of the significance of Peacocke's Stream, the high-density option for developing the Peacocke's area would mean Hamilton City Council needs to minimise the effects of development now and, more importantly, allow room for installing more advanced stormwater management in the future.

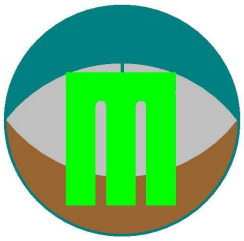
- If urban development must take place, then it needs to be undertaken using sustainable urban design principles. If stormwaters are not directly connected to streams it is possible that larger impervious areas could be created without compromising ecological values. This can be achieved through dispersal-at-source solutions such as the promotion of infiltration and evapotranspiration. The Council should not shy away from passing variations to its current plans to enable this. Lower density housing is particularly crucial in ecologically sensitive areas and areas where treescapes are desirable. This would be key for properties backing onto the gully. Creating a contrasting urban setting based on sustainable design principles within Hamilton would add to the city's diversity - in terms of landscape, community and the people attracted to live here.
- Urban planning for the Peacocke's area has so far reflected the need to minimise how much people drive. We strongly support this emphasis for Peacockes. The more people driving the more contaminants will reach the stream through road run-off. Reducing car usage reduces pollution at its source, and of course the best place to tackle stormwater pollution is at the source.
- We support the development of cycleways and walkways as it discourages car usage (and associated problems discussed above) as well as promoting appreciation of the stream and gully system. A wide sealed path with wide grass verges would not provide an effective riparian buffer for the stream. If people prefer the paths to be open (e.g. for security) then room needs to be provided for these networks beside the gully.
- Zinc is a major problem in stormwater. It is not the most toxic pollutant but is produced in such huge quantities that toxic levels are inevitably reached in receiving environments. We mention zinc specifically because zinc roofing is the primary source of this heavy metal. Auckland has effectively eliminated the use of zincallume roofing. Hamilton following suit would have major benefits for Peacocke's Stream. Again this tackles stormwater contaminants at the source.
- With alluvial soils in the Peacocke's area, soakage pits for roof runoff would be a useful and effective way of reducing peak stormwater flows and swales could be used to deal with road run-off. Additionally, there are various options

for reducing impervious area, as you are probably already aware (e.g. pervious pavers, turf roofing).

- The next step in tackling stormwater contaminants is prior to getting into the stormwater system, for example, using swales, raingardens and wetlands.
- Once the contaminants have entered the stormwater system, stopping them reaching the stream becomes difficult. Ponds with sufficient detention periods to remove fine particulates (to which most contaminants are attached) require a lot of space. As mentioned earlier, the stream itself is not an acceptable location for these ponds. Developers wanting to tack a stormwater pond onto the end of their pipe to alleviate the effects of a poorly designed subdivision must be given better direction by Hamilton City Council.

Roading and barriers to fish migration

- Culverts, dams and drop structures create barriers for migrating native fish, including giant kokopu. Concrete piping, channeling and bank structures can eliminate the stream completely. This is worse than urban pollution because it is irreversible. Poorly designed roading can require great lengths of stream to be culverted. Minimising road crossings and using bridges instead of culverts and causeways is crucial.
- The arterial road is currently planned to run adjacent to Peacockes Stream. The proximity of the road to the gully concerns us. Creating a level roading platform requires a wide corridor of cut and fill earthworks. The life supporting capacity of the stream is the dependent on an intact gully ecosystem. The seeps and small tributaries that feed into the stream along its length offer unique and diverse habitat for aquatic life and important functions for downstream ecosystems. Burying these small perennial and ephemeral side arms also cuts off options for stormwater treatment prior to reaching the main stream (such as wetlands). Swales to process road runoff are a much better option ecologically than piping runoff directly to the adjacent stream.
- The arterial road may or may not be intended as a major inroad to Hamilton from the south, but it appears likely to us that one day it could be. Room needs to be provided for such widening that does not involve filling the gully.



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