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Agenda Item: B.1 Goal 2.4 | Mauka to makai watershed management

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ATTN: South Maui CPAC

Mahalo for accepting this written testimony on the Drainage Policy language of the SMCP.

I was involved in a Sierra Club service outing at Waiohuli Kai wetlands on Friday Jan 27 and witnessed firsthand the impacts of mauka rains and local rainfall on north Kihei. In less than one hour, the dirt and sand access path to the county owned wetlands project was completely flooded, and S. Kihei road went from wet with drizzling rain, to flooded with half a foot of water. We were fortunate that our 18 volunteers could escape with their vehicles to higher ground. It is very clear that are current drainage standards and drainage policies are not sufficient. The ocean was not so fortunate as gallons of muddy debris poured into it.

Permaculture designs, as I noted in my earlier testimony, actually work with the land to absorb floodwaters and let them recharge the aquifers. Any update of County drainage standards must include provisions supporting permaculture design techniques

The Draft SMCP currently has a number of proposals where this concept could be included.

The section already contains a lot of material which overlaps with "permaculture" in relation to drainage, e.g.

Green infrastructure are drainage systems that slow down or control stormwater runoff to be utilized for non-potable use (e.g. irrigation) or provide additional environmental benefits (e.g. groundwater recharge, evaporation, reduced pollution, etc.). Examples of green infrastructure include permeable pavements, bioswales, rain gardens, permaculture design, or other rainwater catchment systems.

2.4.2 | Prioritize “nature-based solutions”, low-impact design, **permaculture design**, and green infrastructure strategies rather than “gray” infrastructure to manage flooding and prevent surface water pollutants from flowing into streams and reaching the ocean.

2.4.4 | Protect coastal water quality and nearshore marine environment by requiring redevelopment and new developments to include low-impact development and **permaculture** techniques such as adequate bioswales and other green infrastructure and nature-based solutions to minimize stormwater runoff and coastal nonpoint source pollution.

2.4.7 | To support watershed management and protect water quality, redevelopment and new development shall be encouraged to avoid, minimize, and mitigate impacts to the existing surface and groundwater hydrology. Wetland, wetland buffers, and recharge area conservation and restoration will be prioritized.

2.4.13 | Require the implementation of low-impact development or permaculture design practices in developments in South Maui to reduce stormwater runoff and protect water quality. Encourage management of flows that are greater than the five-

year storm event to retain, filter, and sink as much stormwater through low-impact design or **permaculture design** as feasible on site.

Permaculture design definition:

"Permaculture design is the harmonious integration of landscape and people — providing their food, energy, shelter, and other material and non-material needs in a sustainable way. The philosophy behind permaculture is one of working with, rather than against, nature; of protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems in all their functions, rather than asking only one yield of them; and allowing systems to demonstrate their own evolutions.

The basis of permaculture is beneficial design, which concentrates on already settled areas and agricultural lands. Almost all of these need drastic rehabilitation and re-thinking."

The difference between Permaculture design and "low impact design" is that the reality of installing "low impact design" often results in great disturbance of the natural and cultural landscape, rather than using techniques that shape themselves to the landscape. Attached is a photo of a LID retention basin in a natural stream bed in Makena. An important fishing heiau lies just to the south of this engineering. If this basin is breached by flood waters, the ocean is just a few hundred feet away. This design is convenient to maximize development space, but not necessarily the most thoughtful and aina friendly design for existing natural and cultural systems on the land.

Mahalo for your consideration

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Chair person, Sierra Club Maui

