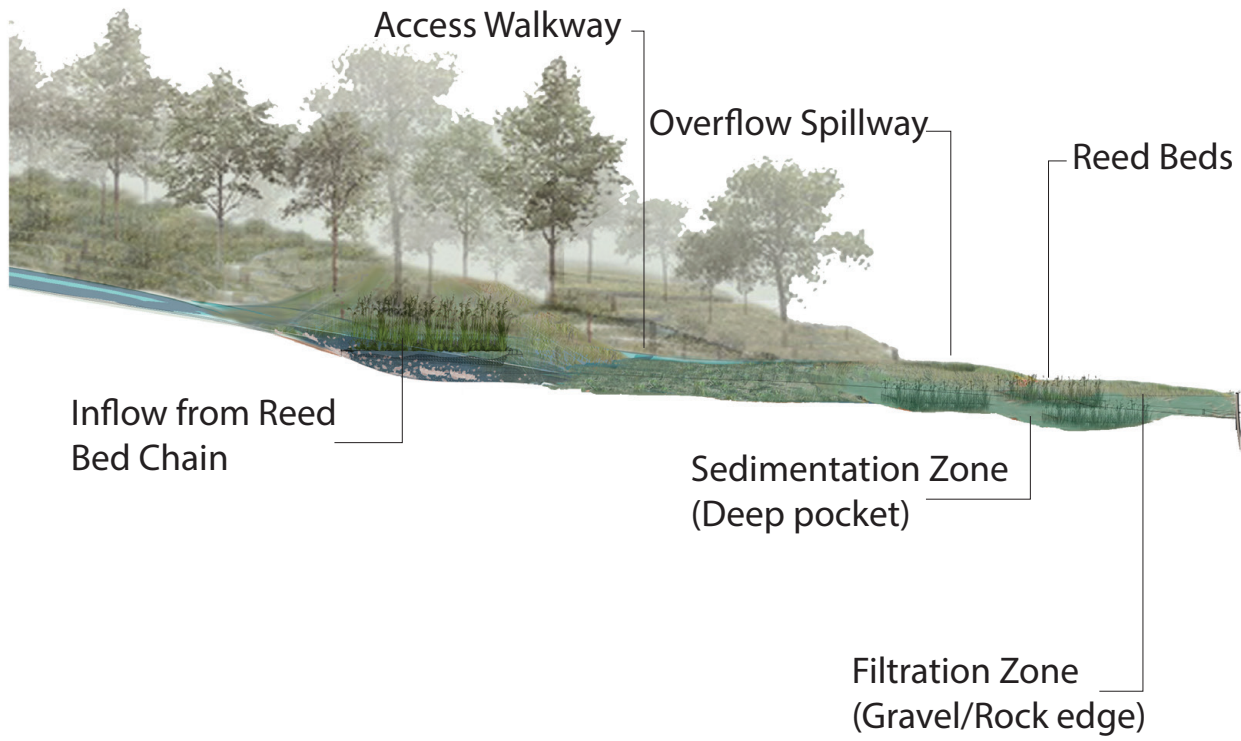
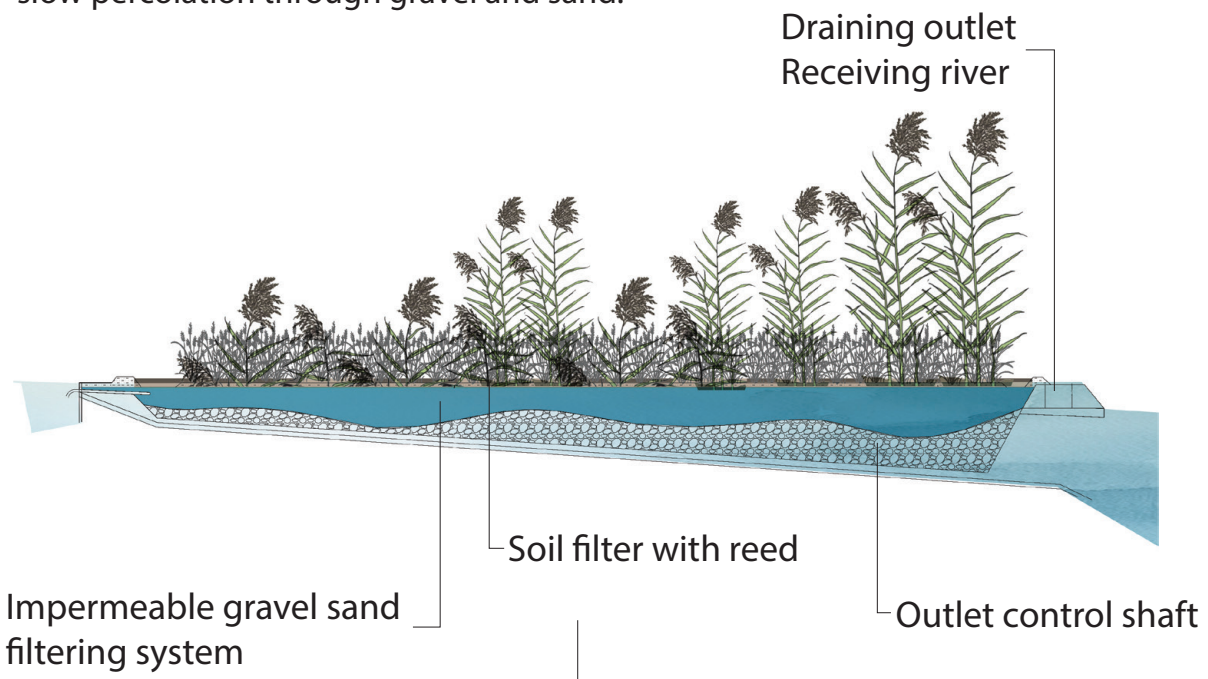
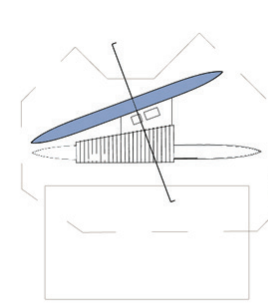


REED BED TREATMENT SYSTEM
Natural Sediment & Biological Treatment
(First filtration stage)

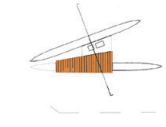
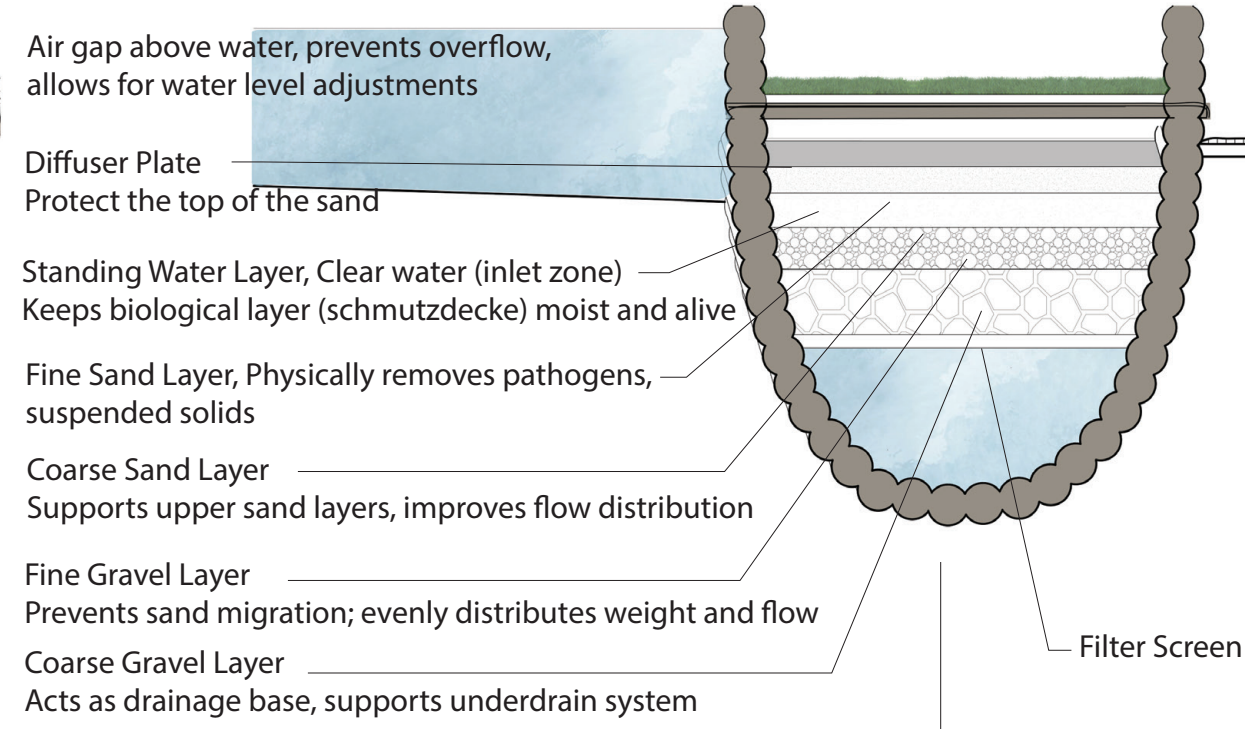
Reed beds remove sediment, and organic matter using a combination of native aquatic plants and slow percolation through gravel and sand.



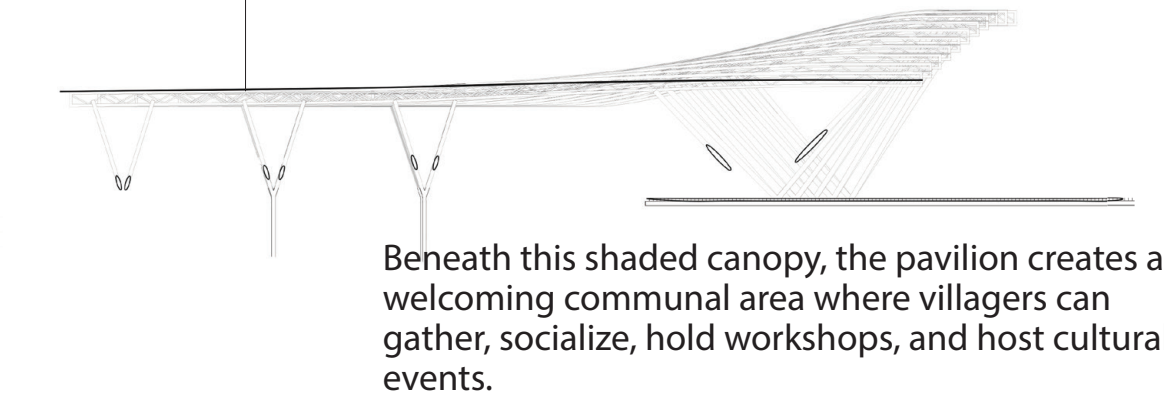
Bioswale Pond (Hybrid Zone)
Combined flood control, sedimentation, and reed bed system, slows and buffers water after the main reed bed chain, enhances infiltration, reduces stormwater runoff, and adds an extra layer of ecological filtration using wet-land plants and microbial action before final sand filtration.



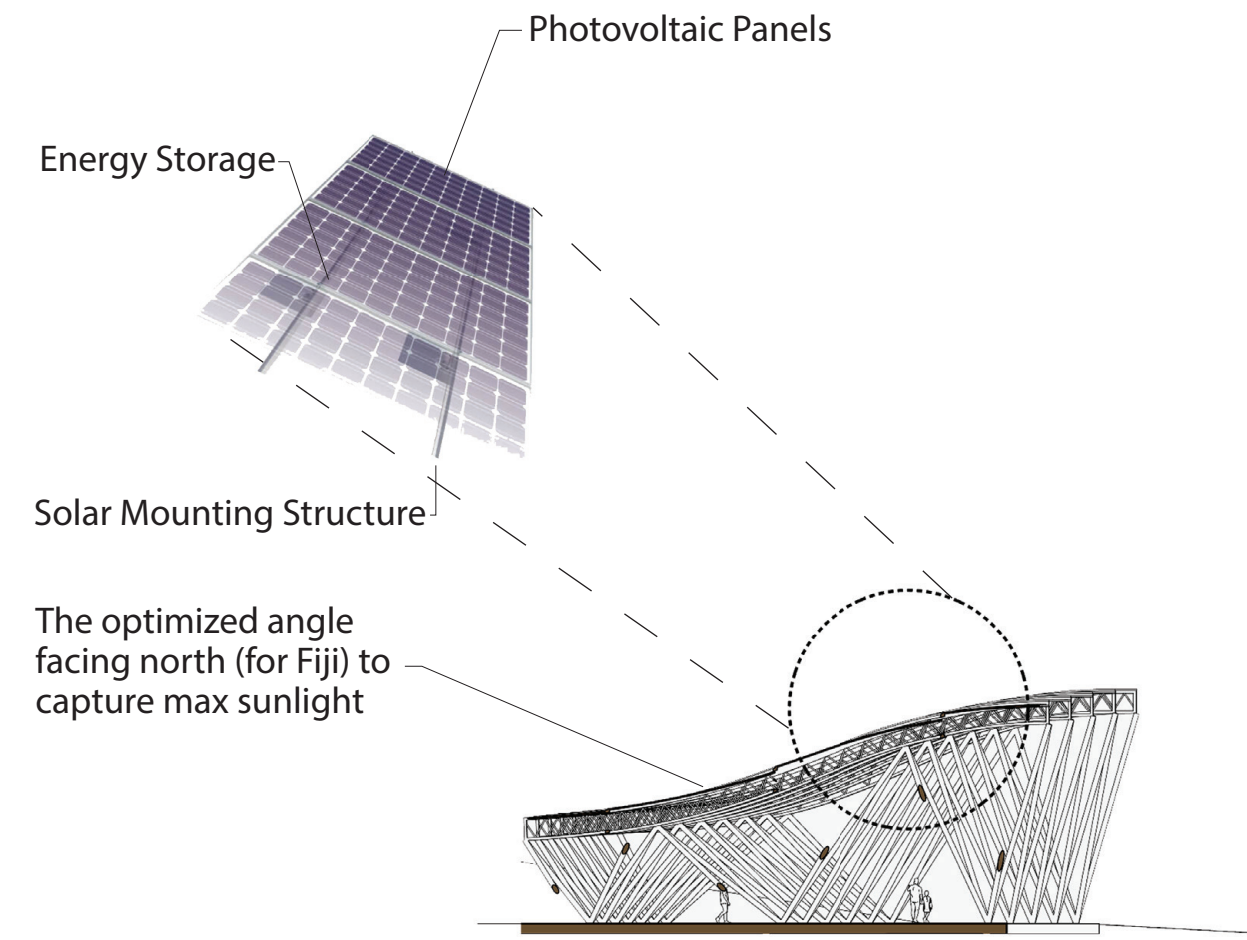
Bio-Sand Filtration Unit
Low-tech sand and gravel filter; provides fine filtration, pathogen removal, and additional water polishing using layered media and a biological surface film (schmutzdecke). No chemicals or power required.



Rainwater harvesting system: A network of precisely positioned gutters and downspouts captures rainfall from the PV canopy, directing it toward the bioswale pond for filtration, purification, and reuse.



Multi-use pavilion structure
A lightweight wooden pavilion, carefully shaped with a concave roof geometry that maximizes solar energy capture while enhancing passive climate performance. The upper roof surface is embedded with photovoltaic panels angled to collect the maximum sunlight throughout the day, powering both the water treatment system and broader village needs. Simultaneously, the pavilion's open, slatted wooden frame is designed to channel cooling breezes toward the village, improving thermal comfort in the adjacent public spaces.



Solar PV Array
500 m² photovoltaic system; generates renewable electricity to power essential village infrastructure, reduce fossil fuel dependence, and support integrated water-energy resilience.

