

004 Aquasensus: A post productive hydro park

from isolation to integration



water retention
a lake and waterlandscape that is habitat for flora, fauna and play while also acting as water storage for agricultural drought

The Hydro-Sponge

This design transforms the post-extractive landscape of Marchtrenk by recentering it on a restored and amplified water cycle. The existing groundwater-fed lakes are understood not as isolated remnants, but as the beating heart of a new, district-scale sponge system. The former gravel extraction area is reprogrammed into a resilient blue-green infrastructure that reconnects hydrology, ecology, and production.

A key intervention is the transformation of former gravel mounds into retention basins — some hydraulically connected to the drinking-water system, others functioning as independent ecological reservoirs. These basins buffer flood peaks, store water during wet periods, and release it in dry phases, strengthening groundwater recharge and climate resilience.

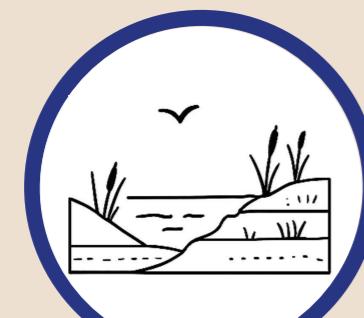
At the same locations, tree islands are established on former gravel piles. Trees play a crucial role in the local water cycle through evapotranspiration, shading, soil stabilization, and microclimate regulation, turning these once extractive scars into active components of the hydrological system.

The Hydrological Core



"Active Aquifer Recharge & The Closed Water Loop"

The Ecological Layer



"Terraced Litoral Zones": Habitat Creation through Shoreline Reshaping"

The Infrastructural Layer



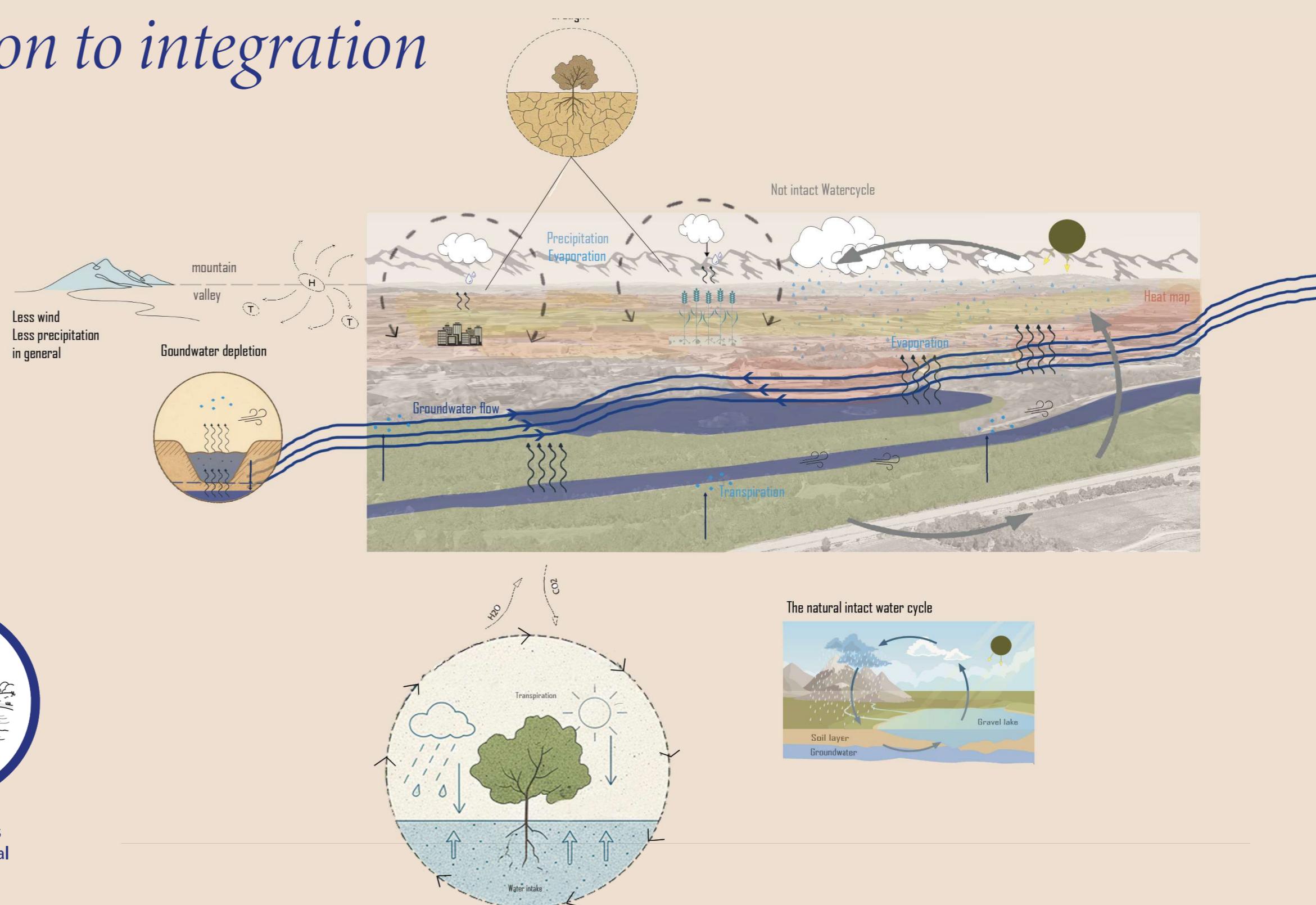
"Floodable meadows: Climate Resilience through Natural Retention"

The Social Layer

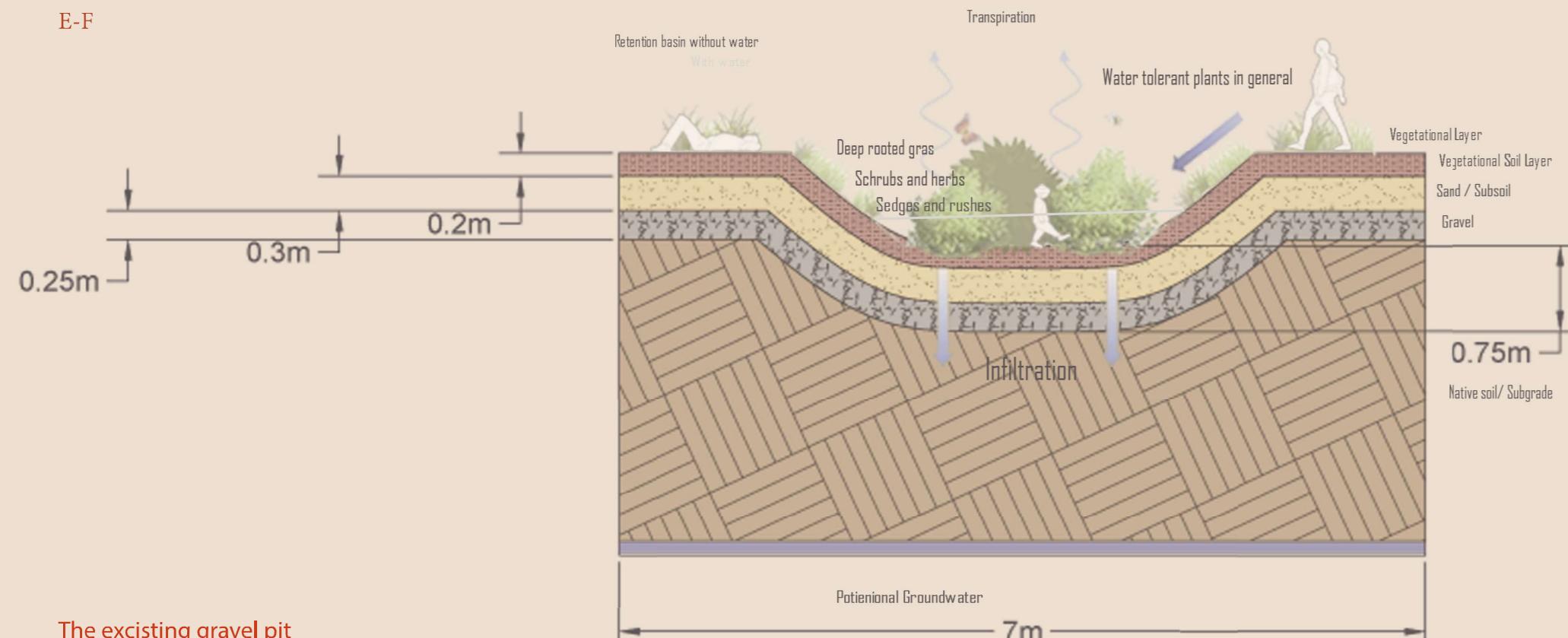


"Educational stations: From Gravel to Life"

"Public promenades along the hydrological bridge"



E-F



The existing gravel pit lakes are currently isolated hydrological features.

2026

Phase 1: Core Connection (Years 0-2): Establishes the foundational hydrology

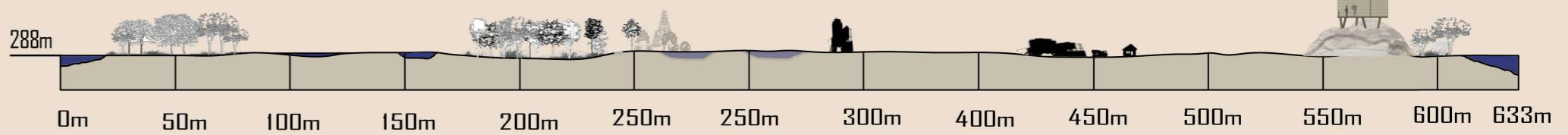
Phase 2: Network Weaving (Years 3-5): Expands the system's reach by integrating bioswales

Phase 3: System Maturity (Years 6-10+): Focuses on ecological maturation and

Status quo



Future paradigm



All already existing vegetation stays+ additional trees

