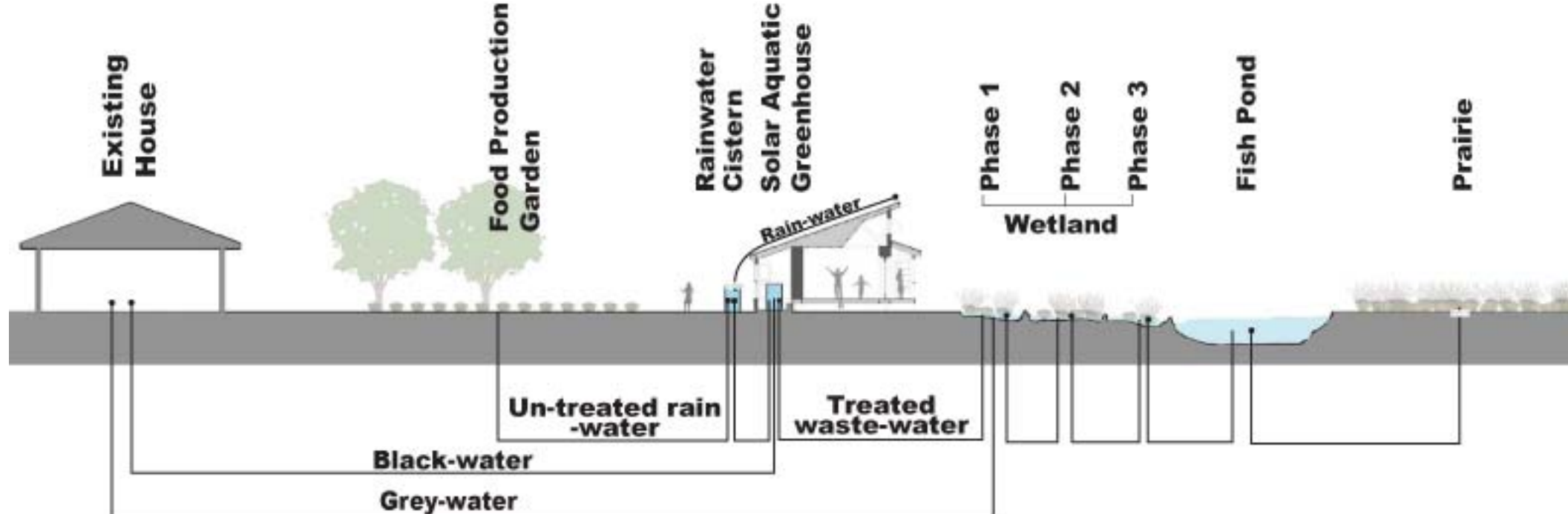


Water-Wastewater-Energy-Building-Landscape System:

The built-site integrates water-wastewater, energy, building, and landscape systems with each other and with the site's regenerative systems. Phase I constructed the building and greenhouse components of this integrated water-wastewater-energy-building-landscape system. Phase II completes these and the project's living and regenerative systems that process wastewater, clean the air, and enhance building thermal comfort.



Water-Wastewater Sub-System

Water is harvested, stored, transported, used, combined with wastewater from the existing farmhouse, regenerated (greenhouse solar aquatic system; constructed wetlands) and discharged in at least the quality harvested. Quality will be monitored at point of harvest, prior to regeneration, and point of discharge to the prairie.

Energy Sub-System

The project's active technologies integrate roof solar voltaic panels, a geothermal heating system, and a composting water heating system to expand learning, research and demonstration about available technologies. Its passive technologies include natural ventilation, solar performance, and thermal efficiency.

Building Sub-System

The building includes earth-plastered strawbale walls, wood floor and roof framing, fly-ash concrete greenhouse floor, wood windows, glass greenhouse walls, and applied surfaces on walls, floor, and ceiling. It is energy-efficient due to strawbale walls, building orientation and proportions, roof overhang proportions, and greenhouse floor mass.

Landscape Sub-System

The regenerative landscape includes prairie, bioswales, constructed wetlands, solar aquatic system (biological treatment), and food production. This landscape that produces food, regenerates the quality of runoff and wastewater from the existing farmstead, and provides a series of outdoor "classrooms", will be constructed in Phase II of this project.

