Cross Creek Ranch Polishing Pond

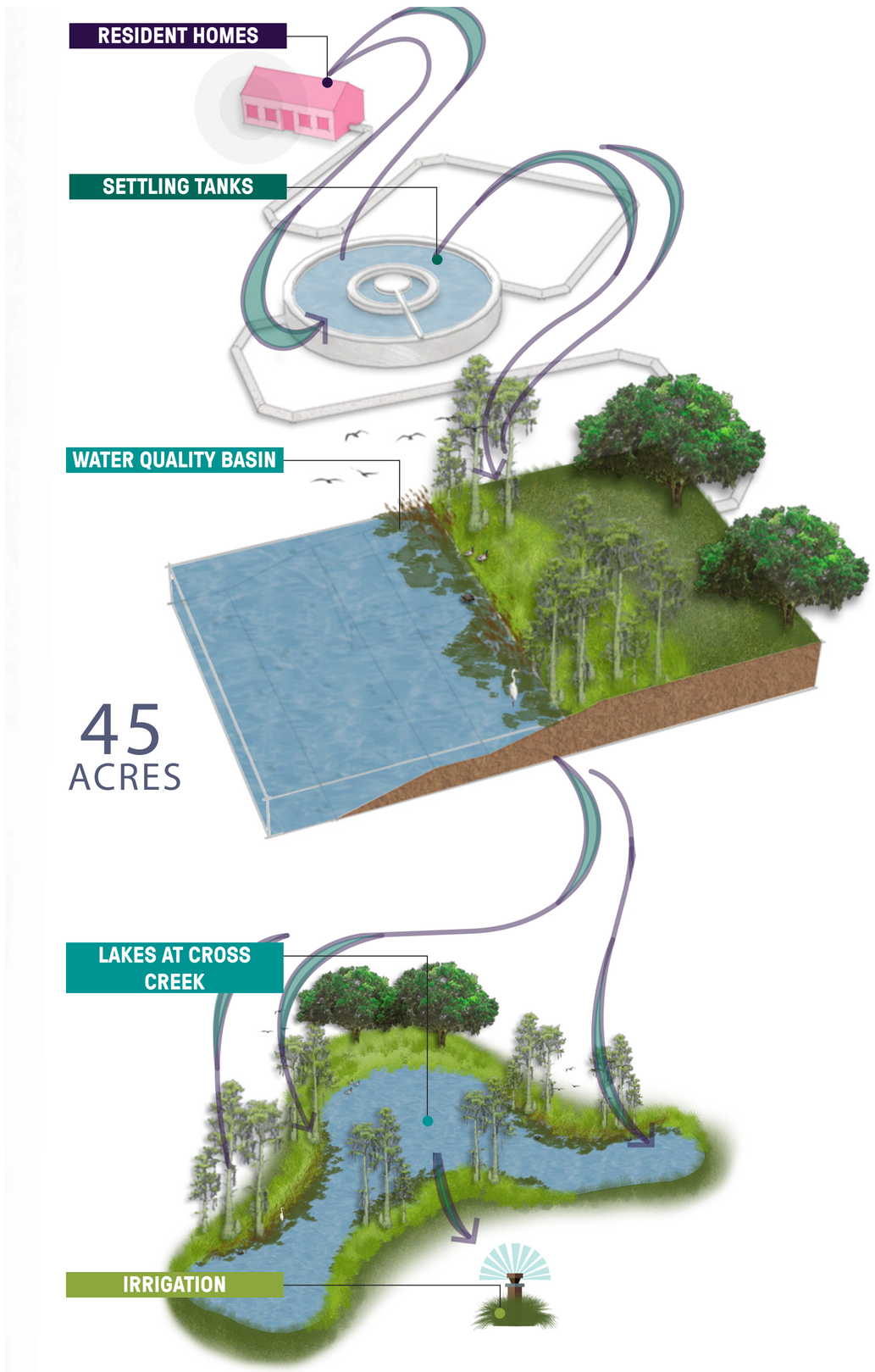
Project Overview

Sustainability Stars Awarded: Investigation, Investment, Integration & Innovation
Project Type: Residential Community & Infrastructure
Local Permitting Entity: Texas Commission on Environmental Quality, City of Fulshear
Project Cost: Confidential
Site Size: 45 Acres (immediate project)
3,200 Acres (Entire Community)
Project Owner: Fort Bend County MUD 169, Johnson Development Corporation
Project Engineers: BGE, Inc. (Engineer) & SWA Group (Landscape Architect)

Sustainability Features: 3-Part Water Transect

Designed as a 45-acre wetland treatment basin, the Polishing Pond is the start of a three-part water management transect where community effluent is captured and treated, sent to an extensive naturalized system of bioremediating polishing lakes, and then slowly discharged into a meandering three-mile long creek restoration.

Along the journey, thoughtful site design promotes reduced water use by plant selection and designated no irrigation zones, improved water quality through the use of linear bioswales and wetlands, re-purposing of wastewater for landscape irrigation, and re-establishing stream equilibrium through fluvial geomorphology principles.



Water Treatment Process

Cross Creek Ranch

Individual Star Overview/Narrative

INVESTMENT STAR

Polishing Pond

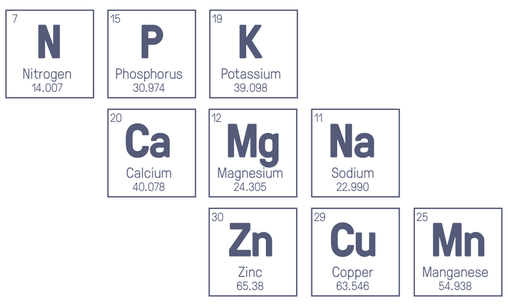
The Polishing Pond is particularly innovative in its engineering approach. Effluent being discharged from the site ultimately drains into Oyster Creek, one of the Texas Commission on Environmental Quality's historically listed impaired streams. As such, any discharge should essentially be devoid of biologically impaired pollutants and high concentrations of oxygen. Standard treatment practices typically utilize mechanical treatment systems to process and clean community effluent. These systems incorporate several concrete basins and various pieces of equipment that require enormous power supplies and large impervious footprints with few external benefits.

INTEGRATION STAR

Community Connections

To provide broad resident access, community connector trails pass by the eastern edge and meandering nature trails seamlessly thread between and around varied habitats. Boardwalk and overlook crossings have also been added for additional mid-basin access and are complimented by educational signs. In addition to biological treatment, the signage focuses on site accommodations for neo-tropical migrants and community birding opportunities.

INVESTIGATION



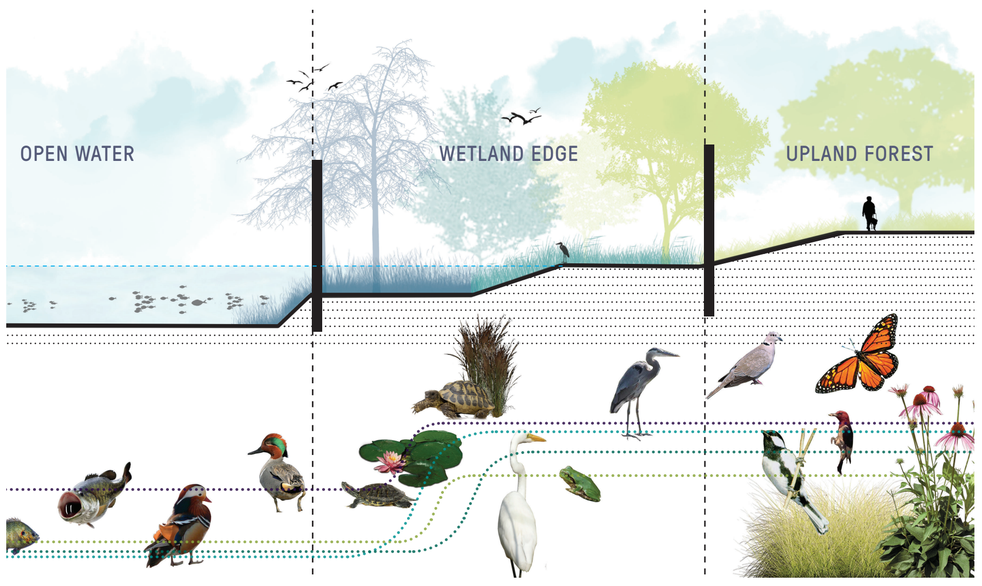
LAF Case Study

Shortly after construction, students from Texas A&M became interested in the treatment process and did a case study on the project for the Landscape Architectural Foundation. Field samples were taken and lab tests were run. The data supported water quality goals by showing reductions in the concentrations of nitrogen, phosphorous, potassium, calcium, magnesium, sodium, zinc, copper and manganese.

Immersive Experience

The success of the project is best defined not by numbers, but by experience. Early morning or late evening walks through the site reveal darting birds, animal choruses at the edges, striking tree silhouettes, and footsteps treading lightly through nature. A site where function is high but emotional connectivity creates enduring respect for sense of place.

INNOVATION STAR



Ecological Oasis

While carefully crafted for engineering purposes, the ecological framework has become an ecological oasis for residents and wildlife. Native naturalized plantings have been extended beyond the aquatic shelves to create varied habitat zones and recreational opportunities. Originally dry, designers recognized an unique ecological opportunity and planted numerous Bald Cypress within the dry basin banks. As effluent from new homes reached the site, water levels rose to static levels and submerged trees to create iconic Cypress trees in standing water.