



Integrated Water Infrastructure at Lakefront Estates

Potable water, wastewater treatment, and reuse planned as one buildout system



0.5 MG potable-water storage and 2,500 gpm booster pump station under construction

THE CLIENT

An experienced developer constructing the Lakefront Estates master-planned community in South Florida needed potable-water storage and distribution capacity on an accelerated schedule, a wastewater and reuse strategy that could scale through full buildout, and coordinated capital planning across all three systems.

THE CHALLENGE

The water and wastewater program had been planned phase by phase. Tanks, pump stations, and treatment systems were being sized and permitted independently rather than against a common buildout basis. That approach created schedule, cost, siting, and regulatory exposure:

- Potable-water storage relied on a conservative national standard that did not reflect allowances available under Florida code.
- The resulting storage basis would have triggered costly offsite improvements and delayed development.
- Reuse was the only viable effluent-management pathway, yet planning had not extended beyond phase 1A.
- The project lies within a Basin Management Action Plan area, adding nutrient-reduction obligations to the permitting strategy.

THE SOLUTION

REGEN evaluated the development as one water-resource system, corrected inherited sizing and siting assumptions, and managed the regulatory pathway without sacrificing the client's schedule.

POTABLE WATER

Storage & pumping. Design, permitting, and construction administration for the 0.5 MG ground storage tank and booster pump station. A Florida-specific storage basis reduced footprint, volume, water age, and capital cost while eliminating dependence on offsite utility improvements.

Water balance. REGEN assumed responsibility for the sitewide water balance and Consumptive Use Permit, resolving planning gaps before they affected the development schedule.

WASTEWATER AND REUSE

Phased MBR facility. REGEN designed a membrane bioreactor facility to serve initial capacity through the community's 0.9 MGD full buildout without redesign at each phase. The compact process was selected after a technology alternatives analysis to fit a constrained site.

Supporting infrastructure. The design includes reject-water storage and pumping, effluent pump-station upgrades, and the reuse storage and pumping systems needed to make the reclaimed-water program operational.

PROJECT COMPONENT	PROJECT VALUE
POTABLE WATER STORAGE & PUMPING	0.5 MG storage and 2,500 gpm booster pump station delivered from concept to operational in under 12 months
WASTEWATER TREATMENT & REUSE	0.9 MGD MBR reuse facility capacity at full buildout
PERMITTING EFFICIENCY	FDEP, county site plan, and building approvals with no comments
DEFERRED CAPITAL EXPENDITURE	Phased expansion to match capital expenditures to development timing and cash flow
AWT READY	Layout supports future conversion to AWT standards while preserving developer capital

Future regulatory readiness. The facility is designed for Enhanced Nutrient Removal treatment, with the process train and site layout configured for future conversion to Advanced Wastewater Treatment standards as growth triggers change. This avoids a second capital project or premature facility replacement.

SUPPORTING SERVICES

Irrigation supply. REGEN designed a surface-water pump station to supplement community irrigation demand and integrated it into the sitewide water balance rather than treating it as a stand-alone system.

BMAP compliance. REGEN coordinated nutrient-loading commitments with state restoration requirements and aligned the wastewater and reuse design with applicable reduction targets and documentation.

Utility support. REGEN supported the developer's negotiations with the water utility and private operators.

Grant support. Because reuse is the development's viable compliance pathway rather than an optional enhancement, REGEN supported the client's state grant application to help offset added capital cost.

THE OUTCOME

The system now advances from a coordinated water-resource framework rather than a collection of phase-level decisions. The approach protects the development schedule, reduces avoidable capital investment, and establishes a practical path from current construction through full buildout.

RESULTS

- ✓ Potable-water storage and booster pumping moved from proposal request to operation in under twelve months.
- ✓ The FDEP permit, county site plan, and building permit were approved on first submittal with no review comments.
- ✓ Storage optimization reduced capital cost and avoided schedule exposure tied to offsite improvements.
- ✓ Wastewater and reuse infrastructure can scale to full buildout without incremental redesign.
- ✓ The utility program is positioned for future nutrient-reduction requirements and coordinated capital investment.

“REGEN protected our capital and our schedule at the same time. They fixed sizing assumptions that would have triggered costly offsite improvements, eliminated sunk costs, kept us moving through permitting on an accelerated schedule, and designed our wastewater infrastructure to scale through full buildout without redesign. REGEN pairs strong technical solutions with excellent communication a development team relies on.”

— Sruely Morgenstern, Lakefront Estates Director of Operations