



LAKELAND TREATMENT WETLAND TSS REDUCTION

PROJECT DESCRIPTION

The City of Lakeland's (City) 1,200 acre constructed treatment wetland system (Wetland) was experiencing periods of elevated total suspended solids (TSS) in discharge leading to permit exceedances. The City trusted AEI to assess the Wetland treatment operation and develop solutions to alleviate the TSS concerns and meet compliance thresholds. AEI performed analyses of existing water quality data and developed treatment alternatives and recommendations for the City compiled into a final report for management decisions.

OUTCOMES

AEI's analysis of water quality, quantity, and flow data within the cells of the Wetland concluded TSS was correlated with chlorophyll-a, suggesting phytoplankton (algae) was likely a major contributor to the elevated TSS levels in the final treatment cells and discharge.

AEI developed treatment alternatives aimed at reducing algal blooms, with a focus on the final cells. Several alternatives were evaluated, including chemical treatments for nutrient management, algaecides, and other innovative technologies such as ultrasonic waves, nanobubbles among others to directly or indirectly mitigate phytoplankton growth. Included in the evaluation of alternatives were considerations of risks for ecological and water quality impacts of treatments. Short-term benefits and risks and long-term water resource management were key components of our analysis and recommendations.

The final report included data analyses, recommended treatment alternatives, and estimated costs. Continuing technical support includes benefit/risk assessment, long-term management priorities, permitting, and implementation oversight. The ultimate goal is partnership with the City to develop cost-effective, water resource management solutions and regulatory compliance.

PROJECT DETAILS

PROJECT CLIENT:

The City of Lakeland via Tetra Tech

PROJECT LOCATION:

Lakeland, FL

SERVICE LINE AREAS:

-  Environmental Compliance
-  Engineering & Water Resources
-  Geospatial Services

EXPERTISE:

- Water Quality Regulatory Support
- Lake Management
- BMP Development
- Alternative Solution Development