AECOM

Exhibit A-ii

Advanced Algae Cultivation Technology for Nutrient Removal from Florida Surface Waters

Scope of Work

Polk County

Proposal reference: INV51

April 17, 2025

Delivering a better world

Prepared for:

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1. Introduction

AECOM Technical Services, Inc. is pleased to present this proposal to Polk County for a sole-source contract to provide consulting services for the **Advanced Algae Cultivation Technology (AACT) for Nutrient Removal from Florida Surface Waters** project (Project). The AACT concept was developed as a scalable, science-based solution for nutrient removal in surface waters. It offers an innovative approach to improving water quality by leveraging algae-based nutrient removal technologies to mitigate excess nutrients that driver of Harmful Algal Blooms (HABs) in Florida's surface waters.

Polk County has been awarded an Innovation Technology for HABs (InnTech) Grant from the Florida Department of Environmental Protection (FDEP) to fund this effort. Our proposal has therefore been developed to align with the County's Grant Work Plan, as outlined in its Grant Agreement with FDEP (Agreement No. INV51).

To support the successful execution of the Project, AECOM has partnered with MBE, a recognized leader in algal biotechnology and applied phycology, bringing expertise in algae cultivation system design and process optimization. Additionally, the project team includes Dr. Ramdeo (Andy) Seepaul, a research scientist at the University of Florida Institute for Food and Agricultural Services (UF/IFAS), whose research includes the use of algae-based fertilizers for sustainable agriculture.

These capabilities complement AECOM's technical expertise and extensive experience in the development of innovative technologies for nutrient reduction and HAB mitigation, including several projects under the InnTech Grant Program. AECOM has successfully completed three projects under this program and is currently leading a fourth. This experience provides AECOM with a strong understanding of FDEP's expectations and regulatory requirements, enabling us to support Polk County in delivering a successful project to meet FDEP's program goals and compliance requirements.

1.1 Project Understanding

Lake Hancock is a 4,583-acre public lake in the Peace River-Saddle Creek Watershed, ranking as the third-largest lake in Polk County and the fourth-largest lake in the state of Florida. Unfortunately, Lake Hancock has a long history of persistent and widespread HABs and has been recognized as one of the poorest water quality lakes in Florida. The primary tributary to Lake Hancock is Saddle Creek which receives nutrient pollution from multiple non-point sources including drainage from urban lands and historic phosphate mining areas. Saddle Creek contributes approximately 76% of the total nitrogen (TN) and 84% of the total phosphorus (TP) from runoff to Lake Hancock. Adding to this concern, Lake Hancock drains into the Peace River, which eventually flows into Charlotte Harbor thus contributing to HABs and water quality impairments in these crucially important environmental and economic resources. This project seeks to address this issue by utilizing the AACT to remove legacy nutrient loads in Saddle Creek and nutrient-impaired downstream water bodies including Lake Hancock, Lower Saddle Creek, and Below Lake Hancock.

As outlined in Polk County's FDEP Agreement, the AACT will be installed and operated to evaluate its effectiveness in removing nitrogen (N) and phosphorus (P) from nutrient-rich surface waters. The system will consist of two approximately 100-square-foot (ft^2) raceway ponds and two similarly sized attached algae flow ways, with a total treatment area of about 400 ft^2. The project will be staged on property is owned by the Southwest Florida Water Management District (SWFWMD), located adjacent to Saddle Creek (Parcel No. 24-28-24-000000-014160, Polk County, Florida), in accordance with a License Agreement between SWFWMD and Polk County (issued 3/28/2025).

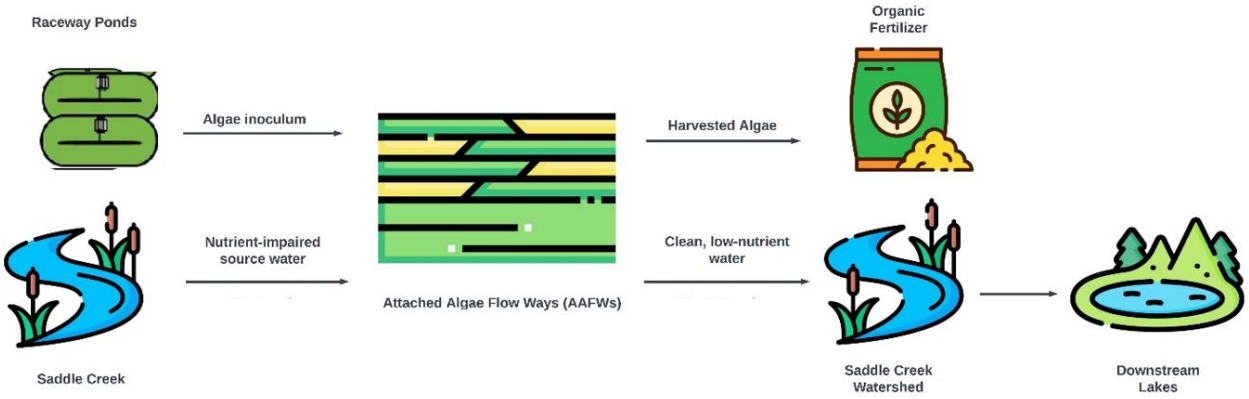
During operation, nutrient-rich water from either a burrow pit or Saddle Creek will be pumped into the AACT for treatment. The process will begin in raceway ponds, where planktonic filamentous microalgae will remove nitrogen and phosphorus. The algae will then be harvested using simple screens, and the effluent from the raceways will be directed to the attached algae flow ways, providing a polishing step to further reduce nutrient concentrations to very low levels (<0.03 mg P/L). The attached algae will be harvested by scraping the flow ways, and the final treated, low-nutrient water will be discharged back into Saddle Creek.

AECOM and MBE have refined the concept plan in preparation for this project based on further evaluation of site-specific conditions and Saddle Creek water quality data. To support this refinement, AECOM staff conducted a site reconnaissance of project area and collected water samples from Saddle Creek adjacent to the project location to analyze nutrient concentrations. The assessment determined that piping water from the burrow pits is not feasible from the staging area, and there is no readily available access to the burrow pits for water collection. Therefore, water will be sourced directly from Saddle Creek adjacent to the project site, which receives drainage from the burrow pits. Additionally, dissolved nutrient concentrations in Saddle Creek at the project site are lower than those of the burrow pit drainage and are highly variable over the year. As a result, the AACT design was modified to allow bypass of the raceways for direct treatment by the flow ways when dissolved nutrient concentrations are lower. This will provide better operational flexibility under variable water quality conditions to maximize efficiency while optimizing nutrient removal.

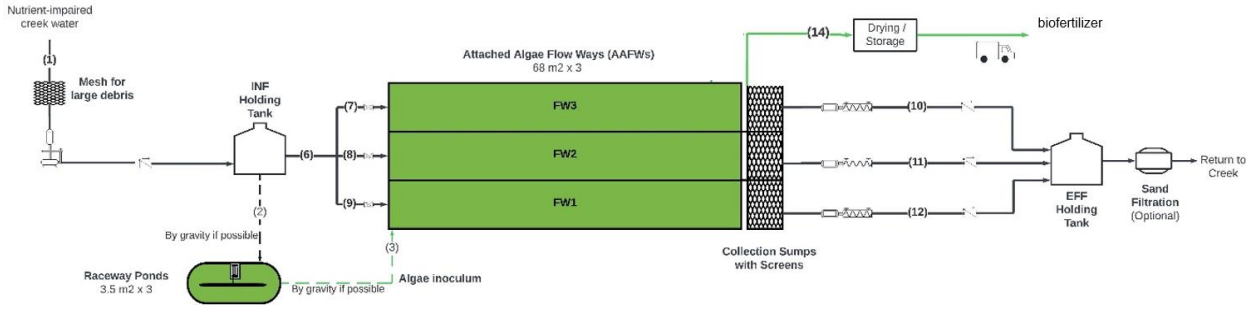
Water will be pumped from an intake in Saddle Creek to an influent holding tank. The intake will be protected with mesh screening to prevent uptake of debris. Water will be diverted from the influent tank to the raceway ponds as needed to produce the selected species of filamentous microalgae for inoculation of the flow ways.

Treated water from the flow ways will be collected in an effluent holding tank, passed through a sand filter, then discharged back into Saddle Creek via a discharge pipe.

Revised AACT Concept Plan



Preliminary AACT Design Flow Diagram



The AACT system will be tested under various flow conditions and seasonal weather patterns to assess its scalability and year-round nutrient removal efficiency. Water samples will be collected at key points along the treatment train (influent and effluent of the raceway ponds and attached algae flow ways) and analyzed for major nutrients (N and P) to determine overall treatment performance. Additionally, the cultivated algae will be evaluated as a biofertilizer to help offset treatment costs and promote sustainability. Algae recovered from the system will be assessed for use as

an organic fertilizer for crops already grown within the Saddle Creek/Lake Hancock watershed, including conventional crops, biofuel crops, and cover crops.

Upon completion of the study, a final report will be submitted, including a comprehensive techno-economic assessment (TEA) and life-cycle assessment (LCA). These assessments will evaluate the economic viability and sustainability of AACT by considering factors such as reductions in greenhouse gas emissions and commercial fertilizer use.

The primary objectives of the AACT Project are to:

- Demonstrate the effectiveness of algae-based technology in removing nitrogen and phosphorus from nutrient-rich surface waters.
- Assess the AACT's performance under variable flow conditions and seasonal weather patterns to determine its scalability.
- Monitor and analyze nutrient removal efficiency by sampling water quality at different stages of the treatment process.
- Evaluate the potential use of harvested algae as an organic biofertilizer, reducing reliance on synthetic fertilizers and offsetting treatment costs.
- Conduct a TEA and LCA to determine the economic feasibility and environmental sustainability of AACT, including the potential for reducing greenhouse gas emissions and commercial fertilizer use.
- Determine the scalability of the technology to support long-term water quality improvements in the Saddle Creek/Lake Hancock watershed while exploring opportunities for broader application of AACT in Florida's surface waters.

2. Scope of Work

AECOM will complete all necessary grant requirements identified in the INV51 GWP. The following provides AECOM's scope of work to complete the project.

Task 1. Quality Assurance Project Plan

A project-specific Quality Assurance Project Plan (QAPP) will be prepared, adhering to FDEP requirements. The QAPP will detail the monitoring activities to track and evaluate the Project's operations and success, and the methods for data collection to meet the required quality standards and objectives. The QAPP will define the sampling and analytical methodology to include sampling locations and procedures, types of sampling instruments to be used, the frequency and timing of sample collection, and the parameters to be analyzed.

AECOM will prepare and submit a draft QAPP to Polk County for review and subsequent submission to FDEP. Following the review process, AECOM will address any comments or revisions requested by the County and FDEP before submitting the final QAPP. Written approval of the QAPP from FDEP will be obtained prior to the commencement of any monitoring activities associated with the Project.

List of Deliverables:

- Deliverable 1a - Draft QAPP
- Deliverable 1b - Final QAPP

Task 2. Project Management

Task 2a. Planning

Detailed site planning of the AACT will be completed within 60 days of contract execution. A site plan will be developed that specifies the layout and orientation of key project components at the project staging area, including the raceway ponds, attached algae flow ways, intake and discharge pipes, storage tanks, and other auxiliary equipment needed for successful system operation.

A health and safety plan will be developed to address the physical hazards that may be present or encountered during execution of the demonstration pilot project, in accordance with 40 CFR §300.150 and 40 CFR §1910.120.

List of Deliverables:

- Deliverable 2a - Final Site Plan and HASP

Task 2b. Permitting

Permits (or permit exemptions) will be secured prior to field operations. All local, state, and federal permits, as may be applicable, will be obtained within the required timelines and prior to field activities related to the Project.

It is anticipated that the Project will require an Industrial Waste Discharge permit from FDEP, as well as approval for disposal of unused cultivated algae either at a waste facility or for land application as a fertilizer. AECOM understands that the County has secured the necessary agreements with the SWFWMD for access and use of the subject property throughout the duration of the Project.

AECOM will consult with Polk County, SWFWMD, FDEP and other relevant agencies to identify and confirm permits and approvals that may be necessary for the Project.

A list of permits and approvals with issue dates and issuing authorities will be submitted to the County's Grant Manager. Copies of permits and approvals or related correspondence and documentation, will be provided upon request by the County's Grant Manager.

List of Deliverables:

- Deliverable 2b - List of Permits and Approvals

Task 2c. Mobilization

AECOM will procure all necessary equipment for the Project and arrange for shipping and receiving of the equipment to the Project site to be located at 905 Saddle Creek Farm Road South, Lakeland Florida, 33801 on property owned jointly by Polk County and the South Florida Water Management District.

Major equipment components will include the raceway ponds, materials for construction of the attached algae flow ways, and ancillary equipment including water and algae storage tanks, algae drying equipment, a diesel generator for backup power, a mobile field office/laboratory, intake and discharge piping.

Site preparation will be completed in accordance with the detailed design and site plan to include:

- Minor land clearing to accommodate the equipment
- Electrical hookup to power pumps, monitoring equipment, and operational systems (e.g., mixers)
- Implementation of site security measures (e.g., fencing, signage) to protect project equipment and personnel.

AECOM will prepare and submit a dated color photograph log to document site conditions prior to, during, and after completion of the mobilization.

List of Deliverables:

- Deliverable 2c – Mobilization

Task 2d. Public Education

AECOM will provide public education information about the project and its environmental benefits in the following formats:

- Polk County website providing project information (to be facilitated through Polk County's Grant Manager).
- Kiosk/signs providing project information installed at the project operations locations during operations and removed during decommissioning.
- At a minimum, one public education workshop during operations to include a live demonstration of the technology.

Draft public materials will be prepared and submitted to the County. Comments on the draft materials from the County and FDEP will be addressed and final versions submitted to the County for approval prior to dissemination.

Draft project information materials will include: 1) draft project information materials for posting on Polk County's website; 2) copy of draft kiosk/sign(s) text and graphics; and 3) draft materials for public presentations and educational meetings

Final project information materials will include: 1) project information materials to be posted on the County's website; 2) dated photograph(s) of installed kiosk/sign(s); and 3) copy of meeting or workshop notices, agenda(s), meeting minutes or notes, and sign-in sheets

List of Deliverables:

- Deliverable 2d. - Public Education

Task 2e. Demobilization and Site Restoration

After completion of the operational phase, AECOM will complete the decommissioning and site restoration activities. The AACT will be deconstructed and transported off-site in accordance with the final design and required permits. The security fence (if installed) will be removed, and the electrical power serving the site will be discontinued. The landscape will be returned to its pre-testing conditions, as much as is practical. Unused algae recovered during operations will be disposed of according to permit requirements.

A Site Close-out Inspection will be conducted with staff from Polk County to confirm that all equipment has been removed from the site and the site conditions have been returned, as closely as practical, to pre-study conditions.

AECOM will submit a signed acceptance letter of the completed decommissioning work, and dated color photographs of the site before, during, and after decommissioning.

List of Deliverables:

- Deliverable 2e – Demobilization and Site Restoration

Task 2f. Quarterly Status Reports

AECOM will prepare detailed quarterly status summary reports outlining the status of the project including summary of inspection(s), representative photos, meeting minutes and field notes, as applicable. Draft reports will be submitted to the County's Grant Manager within 15 days following the end of each quarter. Any comments received from the County will be addressed within 5 days of receipt.

List of Deliverables:

- Deliverable 2f - Quarterly Status Reports

Task 3. Monitoring

AECOM will conduct monitoring in accordance with the FDEP-approved QAPP for this project. Monitoring will occur over an 11-month period and include the following field parameters: flow, pH, dissolved oxygen, conductivity, turbidity, chlorophyll-a by fluorometry, and temperature. Additionally, grab samples will be collected for nitrogen, phosphorus, and algae identification/enumeration.

Additionally, samples of the algae slurry and dewatered algae recovered from the AACT will be analyzed for nutrient content and evaluated for its use as an organic biofertilizer by the University of Florida Institute of Food and Agricultural Sciences.

AECOM will develop a Quarterly Operating Report (QOR) summarizing the operations and monitoring of each quarter's (3-months) activities, including text, tables, laboratory reports (if any), figures, and appendices (as necessary). The QOR will include an Executive Summary that succinctly describes the completed operational and monitoring activities, including dates completed and sampling conducted and any not conducted and why), monitoring results along with interpretation of those results (as expected or not as expected), laboratory reports and sampling logs (including field and weather data).

List of Deliverables:

- 3a – Quarterly Operating Report #1
- 3b – Quarterly Operating Report #2
- 3c – Quarterly Operating Report #3
- 3d – Quarterly Operating Report #4

Task 4. Final Report

Task 4a. Installation and Start Up

AECOM and its subcontractors will install and start up the AACT and supplementary equipment in accordance with the final design and required permits. Activities include, but are not limited to:

- Installation of the raceways and algae flow ways
- Staging and connection of all equipment with associated piping and power supply
- Deployment of influent and treated water return piping to Saddle Creek adjacent to the project site
- Start-up and shakedown of the AACT including the propagation of the algae culture in the raceway ponds and flow ways

AECOM will submit: 1) dated color photographs prior to, during and immediately following completion of the task, 2) record drawings and any inspection reports for the project, and 3) signed acceptance of the completed work by AECOM.

List of Deliverables:

- Deliverable 4a – Installation and Startup

Task 4b. Operations

The AACT will be strategically operated over a 12-month period to demonstrate performance of the system over variable water quality and weather conditions. During operations, water will be pumped from Saddle Creek to the AACT for treatment. First, the water will enter the raceway ponds for initial treatment by planktonic filamentous microalgae to remove nitrogen (N) and phosphorus (P), as necessary depending on the nutrient concentration of the influent water. Effluent from the raceways will then be directed to the attached algae flow ways as a polishing step to further reduce nutrients to very low levels (<0.03 mg/L). At lower influent water nutrient concentrations, the water may bypass the raceway ponds and be introduced directly to the flow ways. The final treated low-nutrient water will be passed through a sand filter then returned to Saddle Creek.

During operations, algae will be harvested from the raceways (using mesh screens) and flow ways (screened scraper). Algae harvesting is anticipated to occur weekly during active operations based on algae growth projections. On average approximately 30 kg/day of algae biomass in the form of a slurry (~10% total solids) is expected to be produced by the system.

Cultivated algae harvested from the AACT will be dewatered by settling and draining, air dried (under transparent cover) and then stored on-site. Samples of the dried algae will be provided to the University of Florida Institute for Food and Agricultural Services (UF/IFAS) to evaluate its potential as a sustainable organic fertilizer in local agricultural practices. The evaluation will focus on crops already grown within the Saddle Creek/Lake Hancock watershed, including conventional crops and cover/biofuel crops like Carinata.

Monthly operational logs will be prepared that document the dates and times of field operations, the volume of water treated, and the mass of algae harvested.

List of Deliverables:

- Deliverable 4b.i – Quarter 1 Operations
- Deliverable 4b.ii – Quarter 2 Operations
- Deliverable 4b.iii – Quarter 3 Operations
- Deliverable 4b.iv – Quarter 4 Operations

Task 4c. Reporting

AECOM will prepare a Final Report summarizing the results of the project, including all tasks in this work plan. The Final Report will include at a minimum:

- Executive summary providing a concise overview of the project scope, objectives, key findings, and implications for the target community or stakeholders.
- Project location and background, project description and timeline, grant award amount, and anticipated benefits.
- Financial summary of actual costs versus the budget, along with any changes required to the budget. Include any match or locally pledged contributions provided, along with other related project work performed outside of this Agreement to identify the overall project cost.
- Discussion of project schedule versus actual completion, including changes required to the schedule, unexpected site conditions and adjustments, significant unexpected delays and corrections, and/or other significant deviations from the original project plan.
- Summary of activities completed as well as those not completed and why, as well as a brief summary of any additional phases yet to be completed.
- Photo documentation of work performed (before, during, and after), appropriate figures (site location, site plans, etc.), appropriate tables summarizing data/information relevant to Grant Work Plan tasks, and appropriate attachments relevant to the project.

- Discussion of whether the anticipated benefits have been/will be realized (e.g., why a Best Management Practice (BMP) approach did or did not exceed the expected removal efficiency).
- Summary of monitoring activities completed and any not completed and why, monitoring results, and an interpretation of data based on planned versus realized results.
- A Techno-Economic Analysis (TEA) to evaluate the economic performance of the technology.
- Any evaluations made of the feasibility of the recovered algae to be used as a sustainable organic fertilizer for crops, including conventional crops, biofuel, and cover crops.

AECOM will provide FDEP with a virtual presentation (Microsoft Teams) or an in-person presentation of the Final Report. AECOM will notify the County's Grant Manager of their decision prior to their submission of the Final Report. The presentation will be no more than 60 minutes and will have sufficient time for questions and answers.

AECOM will prepare and submit the draft Final Report to Polk County for review and subsequent submission to FDEP. Following the review process, AECOM will address any comments or revisions requested by the County and FDEP before submitting the final Final Report.

AECOM will submit an electronic copy of the Project Presentation to the County prior to presentation day.

List of Deliverables:

- Deliverable 4c.i - Draft Final Report
- Deliverable 4c.ii - Final Report
- Deliverable 4c.iii - Virtual Presentation of Final Report

3. Project Timeline and Budget Details

The project timeline for the tasks and deliverables associated with the project is outlined in the Project Timeline table below.

Project Timeline

Task/Deliverable No.	Task or Deliverable Title	Task Start Date	Task End Date	Deliverable Due Date/ Frequency
1	QAPP	Upon Execution	01/01/2026	
1a	Draft QAPP			10/01/2025
1b	Final QAPP			12/01/2025
2	Project Management	Upon Execution	04/01/2027	
2a	Planning			01/01/2026
2b	Permitting			01/01/2026
2c	Mobilization			01/02/2026
2d	Public Education			04/01/2027
2e	Demobilization and Site Restoration			04/01/2027
2f	Quarterly Status Reports			Quarterly
3	Monitoring	Upon Execution	04/01/2027	
3a	Quarterly Operating Report #1			07/01/2026
3b	Quarterly Operating Report #2			10/01/2026
3c	Quarterly Operating Report #3			01/01/2027
3d	Quarterly Operating Report #4			04/01/2027
4	Final Report	Upon Execution	08/01/2027	
4a	Installation and Startup			01/03/2026
4b	Operations			
4b.i	Quarter 1 Operations			07/01/2026
4b.ii	Quarter 2 Operations			10/01/2026
4b.iii	Quarter 3 Operations			01/01/2027
4b.iv	Quarter 4 Operations			04/01/2027
4c	Reporting			
4c.i	Draft Final Report			05/01/2027
4c.ii	Final Report			07/01/2027
4c.iii	Virtual Presentation of Final Report			07/01/2027

Invoicing will be by milestone billing. Invoices will be submitted upon completion of the tasks and deliverables associated with each milestone, in accordance with the milestone invoice amounts outlined in the Budget Detail by Task table below. Payment is to be made in accordance with payment terms of the Master Service Agreement between AECOM and Polk County.

Budget Detail by Task

Task No.	Task or Deliverable Title	Task Budget Amount	Milestone Invoice Amount
1	QAPP	$100,000.00	$100,000.00
	Deliverable 1a - Draft QAPP		
	Deliverable 1b - Final QAPP		
2	Project Management	$500,000.00	
	Deliverable 2a - Planning		$100,000.00
	Deliverable 2b - Permitting		$50,000.00
	Deliverable 2c - Mobilization		$247,000.00
	Deliverable 2d - Public Education		$50,000.00
	Deliverable 2e - Demobilization and Site Restoration		$50,000.00
	Deliverable 2f - Quarterly Status Reports		$3,000.00
3	Monitoring	$500,000.00	
	Deliverable 3a - Quarterly Operating Report #1		$200,000.00
	Deliverable 3b - Quarterly Operating Report #2		$100,000.00
	Deliverable 3c - Quarterly Operating Report #3		$100,000.00
	Deliverable 3d - Quarterly Operating Report #4		$100,000.00
4	Final Report	$1,200,000.00	
	Deliverable 4a - Installation and Startup		$885,000.00
	Deliverable 4b - Operations		
	Deliverable 4b.i - Quarter 1 Operations		$60,000.00
	Deliverable 4b.ii - Quarter 2 Operations		$60,000.00
	Deliverable 4b.iii - Quarter 3 Operations		$60,000.00
	4b.iv - Quarter 4 Operations		$60,000.00
	Deliverable 4c - Reporting		$75,000.00
	Deliverable 4c.i - Draft Final Report		
	Deliverable 4c.ii - Final Report		
	Deliverable 4c.iii - Virtual Presentation of Final Report		
Total		**$2,300,000**	**$2,300,000**