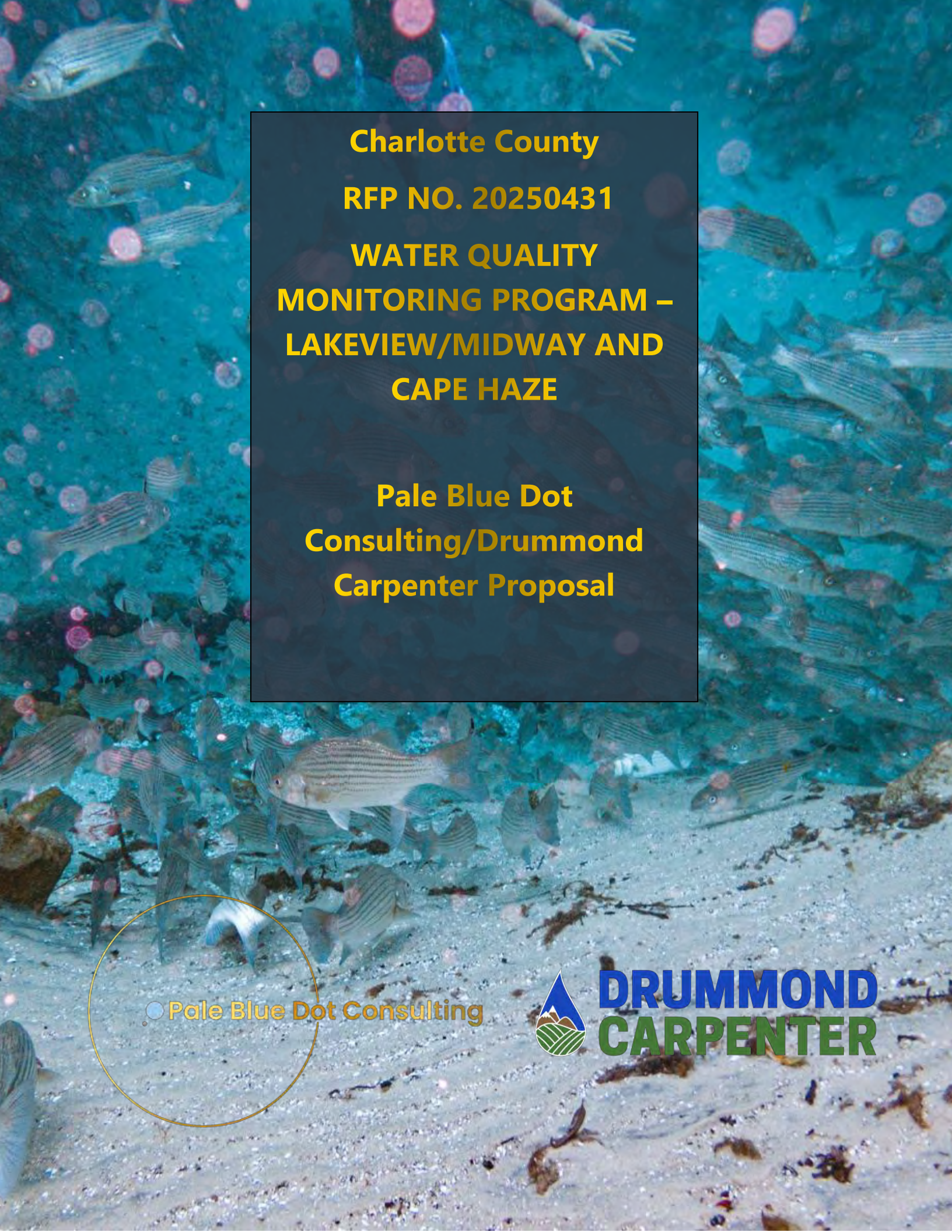


Charlotte County

RFP NO. 20250431

WATER QUALITY MONITORING PROGRAM – LAKEVIEW/MIDWAY AND CAPE HAZE

Pale Blue Dot Consulting/Drummond Carpenter Proposal

Pale Blue Dot Consulting

DRUMMOND CARPENTER

Tab I.

Team Proposed for this Project

Pale Blue Dot Consulting

Pale Blue Dot Consulting (PBD) is a certified Minority Business Enterprise (MBE) located in Saint Petersburg, Florida. Founded on π-day 2024, the staff have decades of experience working with local, state, and federal regulatory agencies on behalf of clients. PBD staff have advanced degrees, professional certifications, and extensive project experience in natural resource management, water resource management, water quality, wetland science, compliance audits, biological and chemical sciences, benthological surveys, limnology, environmental permitting, wetland mitigation and monitoring, ecosystem restoration and conservation, arboriculture, botany, taxonomy, wildlife ecology, ichthyology, herpetology, ornithology, living shoreline design and permitting, protected species surveys and permitting, emergency response, grant applications, quality assurance and quality control (QA/QC), and geographic information systems (GIS) analysis. As a small, local firm, Pale Blue Dot Consulting can offer Charlotte County personalized service, quicker response times, and cost-effective solutions tailored to the community's specific environmental and infrastructure needs.

Primary office location servicing this contract:

Pale Blue Dot Consulting, 1630 58th Avenue South, Unit 1, Saint Petersburg, FL 33712

Primary Contact:

Eesa Ali | 904-813-1298 | eesa@PBDs.com

Pale Blue Dot Consulting Team:

PBD is partnering with **Drummond Carpenter, PLLC**, a Florida-certified VBE (veteran-owned business) and well-established firm that possesses the necessary and supportive expertise to successfully conduct projects under this RFP. Drummond Carpenter is an environmental engineering and consulting firm that will lead data modelling, groundwater well installation and monitoring, and provide expert assistance on septic-to-sewer studies.

A. Background of the Personnel (Full Resumes/Certifications can be found in Appendix 1)

1. Project Manager/Lead Designer

Eesa Ali, PWS – Principal/CEO (Pale Blue Dot Consulting)

Eesa is an Aquatic Biologist and a Professional Wetland Scientist with a specialty in performing water resource assessments, environmental statistics, and auditing water quality and biological data collection programs. Eesa has twenty-two years of experience leading teams of scientists in regional studies across Florida conducting compliance audits, FDEP Rapid Biological Assessments (including HA, SCI, RPS, LVS, LVI, LCI, and more), and ambient water sampling and water quality evaluations to support National Pollutant Discharge Elimination System Compliance Enforcement Inspections (NPDES CEI) and permitting, Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), Water Quality-Based Effluent Limitation Studies (WQBELs), Site-Specific Alternative Criteria (SSAC), pollution source tracking, microbial source tracking, potable water permit compliance, emergency response, and stakeholder engagement. He has also represented the state of Florida performing shoreline cleanup assessments following the BP Deepwater Horizon Oil Spill in the Gulf of Mexico. Eesa instructs on water quality sampling techniques, instrument calibration and data verification, and quality assurance & control (QA/QC), and OSHA HAZWOPER. As a recognized leader in water quality monitoring and analysis, Eesa is a current board of directors member and former president of the Florida Lake Management Society (FLMS), former Education, Conference, & Membership Committee Member for the Florida Stormwater Association (FSA), and a member of the Tampa Bay Association of Environmental Professionals (TBAEP). These positions have further improved his presentation and teamwork, skills that directly translate into connecting with and understanding stakeholders' concerns.

2. Other Key Personnel

Ryan Countess – Principal/COO/Senior Ecologist (Pale Blue Dot Consulting)

Ryan is an Ecologist with a decade of experience specializing in the management of wetlands, wildlife, and invasive species. He has led teams of scientists in performing a wide range of listed species surveys and permitting, wetland delineations and permitting, qualitative and quantitative wetland assessments, stream and lake biological assessments, floodplain inspections, integrated water use and consumptive use permit compliance, stormwater pollution prevention planning and compliance, and invasive species mapping and control. Ryan is a Florida Fish and Wildlife Conservation Commission (FWC) Authorized Gopher Tortoise Agent, Burrowing Owl Agent, and ISA Certified Arborist. He is actively engaged in the local environmental community, serving on the boards of TBAEP and the St. Petersburg Audubon Society, and volunteering with Stewards of Our Urban Lakes (SoUL) and St. Pete Urban Foresters.

Katie Bowes, PWS – Senior Scientist (Drummond Carpenter)

Ms. Bowes has nine years of experience in large-scale ecosystem restoration across marine, estuarine, and riverine habitats, with a strong focus on municipal environmental and stormwater management. Her master's research explored pollutant dynamics in marine and wetland ecosystems. During her time in local government, she applied this knowledge to retrofit aging stormwater systems and develop science-based water quality solutions. More recently, she has helped municipalities update wetland and land preservation policies, promoting natural resource protection alongside sustainable urban development.

Bud Davis, PhD, PG – Senior Geologist (Drummond Carpenter)

Dr. Davis specializes in hydrologic and hydrogeologic modeling, GIS, spatial analysis, and stormwater management. His work includes sediment transport modeling in urban streams and creating large-scale integrated groundwater-surface water models to evaluate recharge. He also has direct experience inspecting municipal infrastructure and offering targeted recommendations for stormwater best management practices.

Nate Holt, PE – Senior Engineer (Drummond Carpenter)

Mr. Holt specializes in environmental studies focused on pollutant characterization, water resource modeling, and geospatial analysis. His work involves evaluating pollutant movement through soil, groundwater, and surface water using both field measurements and modeling. He designs monitoring systems for surface water, porewater, and groundwater, and builds and calibrates numerical models to simulate flow and pollutant transport in various environmental systems, including hydrodynamic, vadose zone, and groundwater models.

Emily Hatdegen, PWS – Senior Staff Scientist (Drummond Carpenter)

Mrs. Hartdegen brings nine years of experience in environmental science and five years in project management, with expertise in water quality, environmental assessments, permitting, compliance, aquatic ecology, and wetland science. Her master's research centered on stormwater treatment area function and management. With a background spanning research, consulting, and quality assurance, she is well-equipped to lead complex, large-scale environmental projects.

Callie Hathorn, WPIT – Senior Staff Scientist (Drummond Carpenter)

Ms. Hathorn began her career at the Florida Department of Environmental Protection, focusing on coastal resilience, coastal ecology, habitat restoration, and policy. At Drummond Carpenter, she works on projects involving water quality, wetlands, and regulatory compliance, collaborating with agencies like FWC, FDEP, and local governments.

3. Consultants

Drummond Carpenter, PLLC is a Florida-certified VBE (veteran-owned business) as well as Small Business Administration certified Service-Disabled Veteran-Owned Small Business (SDVOSB). With local headquarters in Maitland, FL, and satellite offices in Tampa, Titusville, and Pensacola, Drummond Carpenter, PLLC (DC), comprises more than 30 professional engineers, geologists, planners, scientists, and technical professionals dedicated to providing unique and fresh ideas to help Charlotte County manage its water resources. Founded in Florida in 2016, DC serves numerous local, state, and federal government entities, developing close partnerships with each to collaboratively address challenging issues. DC is a full-service engineering and environmental consulting firm providing comprehensive and multidisciplinary expertise to support programmatic objectives.

Primary office location servicing this contract:

Drummond – Carpenter, 630 North Wymore Road, Suite 370 Maitland, FL 32751

Primary contact:

Katie Bowes, PWS | 504-261-8189 | kbowes@drummondcarpenter.com

Analytical laboratory services will be determined based on analytes and respective holding times. PBD has working relationships with several National Environmental Laboratory Accreditation Program (NELAP) certified as well as labs specializing in pollution source tracking analysis.

Tab II.

Proposed Management Plan

Pale Blue Dot Consulting

A. Team Organization

1. Project Management Approach across Pre-, During-, and Post-Construction Monitoring Phases

Pale Blue Dot Consulting (PBD) will coordinate a scoping meeting for each Charlotte County project with its subs and county staff. Topics will include project objectives, deliverables, project design, protocol, quality assurance/quality control (QA/QC), equipment, invoicing, safety, assumptions, and contingency plans, where necessary. The consulting team will prepare a draft scope of work, timeline, and budget based on the outcome of the scoping meeting. After the County review and markup, the scope of work will be finalized and submitted to the county for BOCC approval.

After receiving the notice to proceed (NTP) from the county, Eesa Ali, Lead Designer will host a kickoff meeting with PBD staff and its subs to go over the scope of work and timeline, delegate tasks, reiterate quality assurance expectations for respective tasks, and provide all workers with a contact tree for coordination purposes. The county will receive the same contact tree but should direct all project-related communications directly to Eesa Ali. This kickoff meeting will be informed by a desktop review of all available public data to determine data gaps, sampling needs, site conditions, and site sampling/monitoring well locations. PBDs comprehensive desktop review of publicly available data usually involves water quality and environmental data, including permit history, Florida Department of Health's (FDOH) Florida Water Management Inventory (FWMI) septic/sewer data, Florida department of Environmental Protection (FDEP) Storage and Retrieval (STORET) and Impaired Waters Rule (IWR) databases geographic data, as well as a review of similar septic-to-sewer projects within Florida. Existing data is summarized, and data gaps are identified in such a way to control costs and determine what new data may be needed to move the project forward. Sampling frequency and QC blanks will be determined based on analytes, as well as the age, spread, and count of historical data.

PBD will be responsible for project design, sampling, water quality analysis, and ecological assessment. Drummond-Carpenter will be responsible for surface- and groundwater modelling and drilling and maintenance of sample wells. Analytical lab services will be provided by a NELAC certified laboratory with qualifications specific to the project analytes (once determined) and based on hold times and sampling effort. PBD has working relationships with multiple NELAC certified labs as well as labs that provide qPCR, isotopic, pharmaceutical, and taxonomic analyses. PBD will supervise all work throughout all phases of the project and will be facilitating internal and external communication to ensure tasks are completed on time and without scope creep. There may be opportunities to leverage county staff and stakeholders in source tracking efforts such as dye tracing, smoke testing, "TVing" wastewater lines/manholes, and reconnaissance (walking the WBIDs).

2. Internal Coordination, Communication, and Quality Assurance Procedures

Because pollution source tracking and monitoring is an inherently dynamic and iterative process, Pale Blue Dot will hold weekly internal meetings to monitor progress throughout the project lifespan. Additionally, PBD will hold scheduled progress meetings with Charlotte County on a weekly basis (more or less frequently if requested) to ensure timelines are met and any changes or updates to project methodologies or deliverables can be coordinated and organized. Our approach to successful project management centers on clear, consistent, and effective communication to ensure projects are completed accurately, on schedule, and within budget. We aim to work in close partnership with Charlotte County, collaboratively addressing water quality challenges while ensuring the work is completed efficiently, on schedule, and with a strong focus on keeping costs low through practical, cost-effective solutions.

Lead Designer Eesa Ali is responsible for study design, managing project tasks, team members, and subconsultants, as well as maintaining project schedules. Eesa is responsible for allocating project

resources and managing the technical execution of each project. Specific tasks will be assigned to appropriate staff and subconsultants as needed to fulfill project requirements. All reports and technical deliverables will be reviewed by the Lead Designer and additional senior staff for peer review prior to submission to the County.

PBD has an institutional QA/QC manual based on the Florida Department of Environmental Protection's (DEP) Standard Operating Procedures (DEP-SOP-001/01, DEP-SOP-002/01, and DEP-SOP -003/11). This plan covers all aspects of quality assurance and quality control related to the collection of water quality, hydrological, biological, and ecological samples and data, and ensures the work product quality is legally defensible. The PBD QA/QC manual is available to the county upon request. PBD will provide the County with a quality assurance project plan (QAPP) for each project it undertakes, where necessary. Project Managers are responsible for implementing the QAPP throughout the life of the project. All client deliverables undergo a two-step quality control review, with both a peer and senior reviewer evaluating work products.

Pollution source tracking projects will follow the DEP developed protocol outlined in the document titled "Restoring Bacteria-Impaired Waters A Toolkit to Help Local Stakeholders Identify and Eliminate Potential Pathogen Problems," 2018. PBD staff have worked on numerous pollution source tracking projects across Florida in coordination with DEP staff and local stakeholders (e.g., regulated entities, utilities, businesses, etc.). Leveraging the state allows for greater access to property, infrastructure, utility supervisory control & data acquisition (SCADA), and more transparency with stakeholders. Coordinating this work with the DEP may also be beneficial for future grant funding opportunities based on identified needs.

3. Proposed Schedule Management and Deliverables Tracking

Lead Designer Eesa Ali is responsible for managing project tasks, team members, and subconsultants, as well as maintaining project schedules. Eesa is responsible for allocating project resources and managing the technical execution of each project. Specific tasks will be assigned to appropriate staff and subconsultants as needed to fulfill project requirements. All reports and technical deliverables will be reviewed by the Lead Designer prior to submission to the County. Additionally, the Lead Designer will not be substituted for any other personnel without the consultation and approval of the County.

PBD recognizes that reliable scheduling is essential to the successful delivery of County projects. To support this, Project Manager Eesa will work closely with the County's Project Manager during the scoping phase to verify expected timeframes for key tasks, especially those that require County participation – such as the review of deliverables – which can directly influence overall project timelines.

One frequent challenge in meeting schedules is the limited availability of field staff during the initial stages of a project, when rapid mobilization is often required to collect representative data essential for subsequent phases. To address this, PBD maintains a network of backup subconsultants to ensure that qualified field personnel are available when needed, helping to prevent delays and maintain momentum.

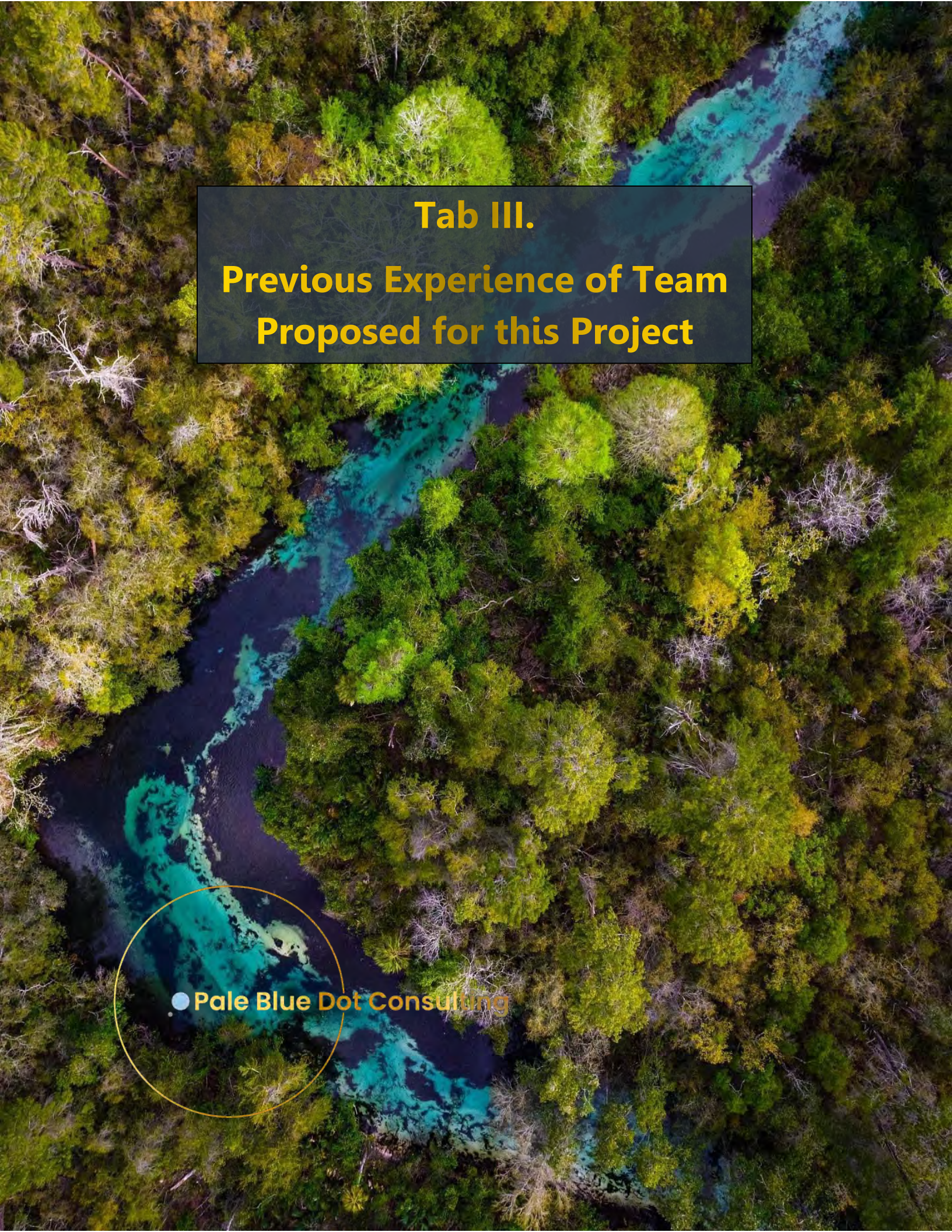
A detailed project schedule will be developed during proposal preparation and shared with the full Project Team. This schedule will be broken down by major tasks, subtasks, key milestones, and deliverables. Any timeline components that require input or review from the County will be highlighted and submitted to the County Project Manager for confirmation, allowing time to accommodate internal County review processes.

By clearly outlining the project timeline and identifying critical paths, PBD ensures that all team members, including subconsultants, remain aligned and informed. This proactive approach to scheduling helps maintain accountability and supports the successful, on-time completion of each project.

Summary:

PBD will provide Charlotte County with all their water quality management needs through:

- Comprehensive baseline data analysis,
- Cost-effective monitoring through strategic data gap analysis,
- Open communication channels with a single point of contact as well as frequent updates,
- Early detection of pollution sources to protect water resources, and,
- Regulatory compliance with state and federal standards which ensures legally defensible data.


Tab III.
Previous Experience of Team Proposed for this Project
Pale Blue Dot Consulting

PBD staff bring extensive experience managing and supporting a diverse array of environmental and infrastructure projects relevant to this RFP. Their work spans both public and private sectors and includes projects in utilities (energy generation and transmission, water, roadway and right-of-way expansion), mining (phosphate, cement, sand), land development (residential, commercial, industrial), and various municipal and government contracts. Since PBD is a newer company, projects from previous employers in which PBD staff were project managers have been included in this section.

A. Relevant environmental or infrastructure projects.

Pale Blue Dot Consulting: 2024–2025

- Stormwater Pollution Prevention Plan (SWPPP) Implementation, Monitoring, and Permit Compliance (Sully's LLC) Kensington Park Improvements, Sarasota County. Ongoing; Contract ~$5,000-$10,000
- Living Shoreline Design and Permitting. (LAV Engineering) Creekside Apartments, New Smyrna Beach, Volusia County. Completed April 2024; Contract $10,700.
- Wetland Delineations and Environmental Resource/404 Permitting Assistance: (multiple private landowners) Alachua, Charlotte, Desoto, Duval, Hillsborough, Lee, Manatee, Marion, Pinellas, Sarasota, and Sumter County. Various projects all with <1 month turnaround times; Contracts $1,000 - $15,000.
- Listed Species Surveys and Permitting Assistance, Gopher Tortoise Surveys, Permitting, and Relocations: (multiple private landowners) Alachua, Charlotte, Desoto, Duval, Hillsborough, Lee, Manatee, Marion, Pinellas, Sarasota, and Sumter County. Various projects all with <1 month turnaround times; Contracts $1,000 - $15,000.

Applied Sciences Consulting: 2023–2024

- National Pollution Discharge Elimination System (NPDES) Stormwater Compliance Monitoring: 3 sites in the Hillsborough River. (City of Temple Terrace) Hillsborough River, Hillsborough County. Completed in August of 2023 and 2024; Contract $36,000/year.
- Quality Assurance Plan for Water Quality and Biological Assessments. Applied Science. Completed December 2024; Internal Client, 100 hours of work.
- Biological Assessments and Delineation of Critical Habitats. (Pasco County) Bear Creek and Pithlachascotee River, Pasco County. Status: Ongoing; Contract $265,000.
- Manatee River Oyster Reef – Resilient Florida Grant Application, $350,000 awarded. (City of Palmetto) Manatee County. Completed August 2024; Contract $12,000.
- Manatee River Oyster Reef Monitoring. (City of Palmetto) Manatee County. Ongoing; Contract value $90,000/year.
- Jungle Prada Living Shoreline and Wave Attenuation: Design, Permitting, Build, and Ecological Monitoring (seagrass survey and wetland vegetation transects). (City of St. Pete Beach) St. Pete Beach/ Pinellas County. Ongoing, currently in permitting phase; Contract ~$350,000.

Flatwoods Consulting Group: 2017–2024

- Hudson Beach Pollution/Microbial Source Tracking. (Pasco County). Hudson Beach/Pasco County. Completed August 2024; Contract $260,000.
- Annual MS4 Compliance Biological Assessments in Six River Systems. (Pasco County) Pasco County. Completed March 2018 - 2022; Contract $16,000/year.
- Horse Creek Stewardship Program (HCSP): Ecological Monitoring, Impact Assessment Studies, Annual Reporting, and Technical Advisory Panel. 2018-2023. (The Mosaic Company) Hardee and Desoto Counties. Completed July 2018 - 2024; Contract $97,000/year (annual report) and $85,000 - $120,000 (impact studies).

- Quality Assurance Plan for Water Quality and Biological Assessments. (The Mosaic Company) Desoto & Hardee County. Completed November 2022; Contract (part of the HCSP annual report budget {$97,000}).
- Horse Creek at State Road 64 Unattended Water Quality Monitoring Station: Design, Permit, and Build. (The Mosaic Company) Hardee and Desoto Counties. Completed January 2024; Contract $60,000.
- Ichthyological and Stream Habitat Assessments in restored, created, and reconnected streams post-mining: Altman Tract. (Manatee County & The Mosaic Company) Manatee County. Completed April 2022; Contact $26,000.
- Wastewater NPDES Compliance – water quality and biological assessments (SCI, HA, LVS, RPS, NNC) in receiving surface waters. (Brown and Caldwell) Hardee, Hillsborough, Manatee, and Polk County. Completed March 2018 - 2023; Contract variable ($11,000 - $60,000).
- King Lake Water Quality Monitoring and Biological Assessment (Lake Vegetation Index). (Heidt Design) Pasco County. Completed January 2022; Contract $84,000/year.
- Annual Stream Habitat Assessment (HA) of Reference Non-Mined Streams: Wingate Mine. (The Mosaic Company) Manatee County. Completed March 2018 - 2023; Contract $11,000/year.
- Hidden Creek Development: Stormwater Pollution Prevention Plan (SWPPP) and Compliance Monitoring. (Kolter Land Development) Pasco County. Completed October 2023; Contract $85,000.
- Stormwater Pollution Prevention Planning (SWPPP) and monitoring along transmission lines, easements, substations, and laydown yards. (Duke Energy) Throughout All of Florida. Various projects: SWPPP and erosion control plan ($1,000 - $5,000); weekly monitoring, post-storm monitoring, and post-construction monitoring ($1,500 - $10,000 per event).
- South Fort Meade – Propps Branch Wetland 6 (FDEP Permit ID No. 0146465-012 (PACTS#100012)) one wetland, 89.1 acres. (The Mosaic Company) Polk County. Ongoing, involved 2019-2023.
- South Fort Meade – Stephens Branch ST(3) Wetlands PR1, PR-2, PR-3, SB-1, and SB-7 (FDEP Permit No. 01464650-001 (PACTS #100012) five wetlands, 72.7 acres. (The Mosaic Company) Polk County. Ongoing, involved 2021-2023.
- South Fort Meade – HC-PR(3) Wetlands 13-14 (FDEP Permit No. 0221122-011 (PACTS #500062)) three wetlands, 21.3 acres. (The Mosaic Company) Hardee County. Ongoing, involved 2020-2023.
- Kings & Lumsden Mitigation Monitoring. Onsite wetland enhancement, onsite wetland creation, plus offsite wetland creation (SWFWMD Permit No. 43002370.006) three wetlands, 1.9 acres. (RaceTrac Petroleum) Hillsborough County.
- Santos Flats Mitigation Monitoring. Onsite wetland enhancement, onsite wetland creation (SWFWMD Permit No. 43043690.001) two wetlands, 0.4 acres. (LIV Development/Santos Flats Apartments) Hillsborough County.
- Ecological Surveys, Wetland Delineations, Wetland Assessments and Monitoring, Threatened & Endangered Species Surveys, Avian Monitoring, and Environmental Permitting along transmission lines, easements, substations, solar farms, and laydown yards. (Duke Energy, Florida Power & Light, Tampa Electric, Seminole Electric) Throughout All of Florida. Various projects (0.5-acre–1,000+ acres; one pole–100+ poles); Contracts $1,000 – $100,000+.

The following projects were public service or utility projects, and no cost or completion dates are provided beyond the year ranges listed.

JEA (Jacksonville Energy Authority): 2015–2017

- Lower St Johns River (LSJR) Basin Management Action Plan (BMAP) Monitoring. (LSJR Technical Advisory Committee & DEP) Duval and Clay County.
- Ad Hoc Post-Disaster Stream and Lake Monitoring. (City of Jacksonville, Clay County, Nassau County, St Johns County, DEP, USCG, & FDOT) Northeast Florida.
- Ad Hoc Potable Water Boil Water Advisory Sampling, Analysis, and Notification. Affected Public & DEP. (DEP & JEA customers) Clay, Duval, Nassau, & St Johns County.
- Potable Water Compliance Monitoring (Bacteria and Free Residual Chlorine). DEP. (DEP & JEA customers) Clay, Duval, Nassau, & St Johns County.

Sarasota County Mosquito Control: 2014–2015

- Ad Hoc Post-Mission Water Quality and Biological Assessments. Sarasota County.
- Phillipe Creek Stream Restoration Assessment. Sarasota County.
- Biological Assessment and Water Quality Monitoring of rural and urban streams impacted by legacy pesticide and herbicide use. Sarasota County.

Florida Department of Environmental Protection: 2003–2014

- Total Maximum Daily Load (TMDL), Basin Management Action Plan (BMAP), Site Specific Alternative Criteria (SSAC), Emerging Substances of Concern (ESOC) Monitoring (water quality and biological assessments) – Hundreds of WBIDs (F03 – 2014. (DEP & USEPA) 21 counties in North Florida.
- Puddin Head Lake Stream Restoration/Revegetation, Rocky Bayou State Park. (DEP). Okaloosa County
- Deepwater Horizon Shoreline Cleanup Assessment. (DEP, USEPA, USGS, & USFWS) Bay, Escambia, Franklin, Gulf, Okaloosa, Santa Rosa, Walton County.
- Water Quality-Based Effluent Limitation (WQBEL) Study. (DEP & USEPA) Anguilla Farms, Putnam County.

B. Groundwater monitoring studies, including site-specific studies related to nutrient loading and aquifer behavior.

- Groundwater Vulnerability Assessment. Groundwater Monitoring and Analysis, Septic-to-Sewer Assessment. (Orange County) Orange County. Completed 2023; Contract $275,000. Drummond Carpenter conducted a comprehensive assessment of the Surficial Aquifer System's vulnerability to pollution across Orange County, with a focus on understanding the impacts of septic systems on groundwater nutrient contamination. The study included modeling nutrient fate and transport, mapping 86,000 septic systems, and prioritizing 14,000 subdivisions for retrofit actions based on risk factors like SAS vulnerability, septic density, and proximity to impaired waters. The project identified 66 high-priority areas for protection and informed regulatory updates, culminating in the adoption of a revised septic system ordinance in November 2024.
- District-Wide Ad Hoc Surface Water and Deep-Well Groundwater Monitoring Services. (Suwannee River Water Management District {SRWMD}) SRWMD. Ongoing; Contract $2,600 - $20,000.
- Total Maximum Daily Load (TMDL), Basin Management Action Plan (BMAP), Site Specific Alternative Criteria (SSAC), Emerging Substances of Concern (ESOC) Monitoring (water quality and biological assessments) – Hundreds of WBIDs (2003 – 2014. (DEP & USEPA) 21 counties in North Florida.
- Water Quality-Based Effluent Limitation (WQBEL) Study. (DEP & USEPA) Anguilla Farms, Putnam County.

- Lower St Johns River (LSJR) Basin Management Action Plan (BMAP) Monitoring. (LSJR Technical Advisory Committee & DEP) Duval and Clay County.
- Groundwater and surface water monitoring post sinkhole formation in a PCS Phosphate (aka Nutrien) phosphor-gypsum stack in Madison County, Florida

C. Previous septic-to-sewer programs and studies – particularly in Florida or similar regulatory environments.

- Groundwater Vulnerability Assessment. Groundwater Monitoring and Analysis, Septic-to-Sewer Assessment. (Orange County) Orange County. Completed 2023; Contract $275,000. Drummond Carpenter conducted a comprehensive assessment of the Surficial Aquifer System's vulnerability to pollution across Orange County, with a focus on understanding the impacts of septic systems on groundwater nutrient contamination. The study included modeling nutrient fate and transport, mapping 86,000 septic systems, and prioritizing 14,000 subdivisions for retrofit actions based on risk factors like SAS vulnerability, septic density, and proximity to impaired waters. The project identified 66 high-priority areas for protection and informed regulatory updates, culminating in the adoption of a revised septic system ordinance in November 2024.

D. Integrated monitoring of both groundwater and surface waters to assess environmental impacts.

- Lake Hickorynut Feasibility Analysis. Surface Water and Groundwater Monitoring and Analysis. (Orange County) Orange County. Completed 2022; Contract $69,000. Drummond Carpenter assessed the feasibility of improving water quality treatment at a stormwater pond near Lake Hickorynut to better protect the lake. The study involved fieldwork, groundwater and surface water monitoring, and modeling using HYDRUS 2D/3D and ICPR4 to evaluate current conditions and conceptual improvements. Findings indicated minimal surface discharge but likely elevated groundwater nutrient loading, leading to the development and modeling of passive treatment options using nutrient reduction media within the pond.
- Big Econlockhatchee Bacterial Assessment. Surface Water Monitoring and Analysis, Microbial Source Tracking. (Orange County) Econlockhatchee River, Orange County. Completed 2024; Contract $198,000. Drummond Carpenter conducted a 14-month water quality monitoring project to investigate E. coli contamination in the Econlockhatchee River, focusing on its intersection with Long Branch Creek. The study identified multiple E. coli hotspots and confirmed contamination from human, dog, and cow sources, likely stemming from a mix of aging wastewater infrastructure, septic systems, agricultural activity, and pet waste. The resulting plan recommended a combination of structural and non-structural BMPs, along with continued targeted monitoring, to address the diverse sources of contamination.

Tab IV.
Project Control

Pale Blue Dot Consulting

A. Schedule

1. What techniques are planned to ensure that schedule will be met?

Pale Blue Dot recognizes the importance of delivering reliable project schedules for the County. Eesa Ali, our Project Manager/Lead Designer, will collaborate with the County's Project Manager(s) to confirm expected timeframes for tasks requiring County input that could influence the overall schedule.

Pale Blue Dot's availability, proximity to project locations, relationships with labs, and dedication to quality science will be foremost in our effort to preserve project timelines and schedules. PBD will maintain regular communication with Charlotte County, all necessary stakeholders, labs, and subcontractors to ensure sampling dates are adhered to, sample hold times are well within allotted timeframes, transportation to labs is coordinated and arranged accordingly, and test results acquired and assessed promptly.

PBD staff experience managing dynamic projects that were vulnerable to and dependent on environmental events, such as event-based sampling (post-storm, post-discharge, flow-proportional composite sampling, etc.), which allows us to anticipate and manage complex sampling schedules and turnaround times. Additionally, being a small, locally owned business allows PBD the flexibility and agility to prioritize projects of this nature, i.e., projects with dynamic scheduling needs.

Lastly, safety is of utmost importance. Health and safety are important for intrinsic reasons, but a safe and healthy PBD, along with its subcontractors, also ensures project timelines are met or exceeded. This begins with selecting safe sampling locations, daily pre-job safety briefings, and identifying hazards and safety resources (nearest hospitals, safe work practices, PPE, etc.).

2. Who will be responsible for ensuring that the schedule will be met?

Eesa Ali, Lead Designer, will be the primary point of contact for this contract and will be responsible for assuring schedules are met. Eesa's extensive experience in managing a wide range of water quality projects provides him with the knowledge and familiarity to design this project approach, coordinate this team of subconsultants to meet project goals, anticipate potential challenges, and adapt to new data and evolving conditions. Additionally, Eesa has experience conducting stakeholder meetings and presentations to communicate findings in simple and understandable ways. His understanding of all aspects of project management, communication, and engagement will ensure timelines are met.

B. Cost

1. What control techniques are planned?

As a locally owned small business, Pale Blue Dot Consulting has lower overhead expenses compared to larger firms, a cost savings that is passed on to our clients. Additional cost control techniques related to this project's approach include:

- **Educated/trained staff.** PBD's team has attended the FDEP SOPs for Water and Groundwater Sampling & Meter Testing. Additionally, Lead Designer Eesa Ali also instructs, both professionally and internally, on water quality sampling technique, instrument calibration and data verification, rapid biological assessments, and quality assurance & control (QA/QC). PBD's team also includes a working relationship with multiple TNI/NELAP Certified Laboratories and environmental engineering firms to assist with testing, trends and analyses, modeling, and field work. This experience ensures that the work effort always produces legally defensible and representative data.
- **Quality Assurance & Quality Control (QA/QC).** QA/QC is performed at every step of sampling and analysis, from site selection, well/meter installation oversight, using high quality sampling equipment, continuously calibrating and recalibrating equipment, verifying and qualifying field data, delivering

samples to labs within appropriate hold time constraints, verifying and qualifying lab results, analyzing data, running models, creating visually appealing and accurate figures for stakeholder engagement, and communicating effectively with the County and all stakeholders to optimize presentation and engagement success.

- **Legally Defensible Data.** Going together with QA/QC, Pale Blue Dot prides itself on providing high quality, scientifically sound, legally defensible data. Pollution source tracking and septic-to-sewer projects are well within the public eye and rightfully open to public scrutiny. Our goal is to provide Charlotte County with data that is scientifically sound and legally defensible. Anything short of bullet-proof data could compromise an entire dataset and jeopardize County objectives.
- **Communication.** Regular project meetings and communication with Charlotte County, stakeholders, and internal staff will ensure timelines and goals are met, prevent scope creep, further maintaining projects within budget. This extends to public stakeholder meetings and presentations in which PBD staff excel at communicating complex science and math to the lay public to build trust, in both the County as well as the PBD team.
- **Safety.** A safe workplace reduces time and costs and improves happiness and wellbeing for all parties involved. Ensuring the safety of field crews and the public requires thoughtful planning during study design, selecting sample locations, planning logistics, managing field crews, and mitigating for pedestrians, traffic, boaters, etc.

2. Demonstrate ability to meet project cost control.

Fortunately, PBD staff have never had a project go over budget or had to request a change order. We have inherited projects and budgets from other consultants that were already over budget prior to us receiving the work. One such project was the Horse Creek Stewardship program which was locked into a budget of <$40,000 for the first three years. In those three years Eesa Ali streamlined field work, the database, statistical analysis protocol, raw data files, and report to facilitate a faster delivery of the report, with less pages, more statistical analyses, more inferences, and no fluff. We then won another three-year contract at a more favorable fee and no losses have been incurred since. The client went from receiving 3-year late reports (from a previous consultant) to receiving reports months in advance of the report due date and the November technical advisory committee meeting. The footprint of the report was reduced by 25%, the appendices reduced by 75%, and the number of statistical analyses increased by 30%, without the loss of any previous analyses.

Eesa Ali has also helped clients save money by directing them to sound scientific studies. One example was a request by an engineering firm which was responsible for a development around a lake. The client wanted to make the case that the undeveloped land was less favorable from a water quality perspective than an urbanized landscape (this is not supported by science). The client proposed an extremely expensive pesticide sampling regime to determine if the lake was impacted by legacy pollution. We instead convinced the client to do one baseline sample to rule out the presence of pesticides, herbicides and base-neutral-acid (BNA) substances, followed by a lake vegetation index survey to determine overall lake health, and monthly in-situ water quality measurements including dissolved oxygen, temperature, pH, specific conductivity, and turbidity. That data was used to show the lake condition before development and inform the future community to be mindful of future impacts to that resource. The data was also used to show that construction activity did not directly impact lake clarity or nutrient cycling.

Our most recent pollution source tracking project was in Hudson Beach, Pasco County. Because of the uncertainty associated with projects of this nature, we created a sample budget anticipating various scenarios and wrote the scope of work with conditional language and sections where the budget included

not-to-exceed quantities. This allowed us to charge the client much less if the sampling need no longer existed, i.e., based on source reduction activity.

3. Who will be responsible for cost control?

Eesa Ali, Project Manager/Lead Designer, will be responsible for cost control. Eesa has a 22-year record of managing public and private water quality projects, including pollution/microbial source projects, and keeping projects within proposed budgets.

C. Recent, current and projected workload.

Table 1 Workload Availability

Staff and Title	Total Annual Hours	Current Workload, Hours	Availability, Hours	Percent Availability
Eesa Ali, CEO	2000	400	1600	80
Ryan Countess, COO	2000	400	1600	80

Table 2 Projected Workload

Project/Client	Projected hours
Turnbull Estates Ecological Monitoring, LAV Engineering[1]	243
Ormond Yacht Club, Ecological Monitoring and Permitting, LAV Engineering[1]	80
Palm Manor, Ecological Monitoring and Tree Survey, TranSystems[1]	75
Stormwater Pollution Prevention Plan (SWPPP) Monitoring, Sully's LLC[2]	48
Total	**446**

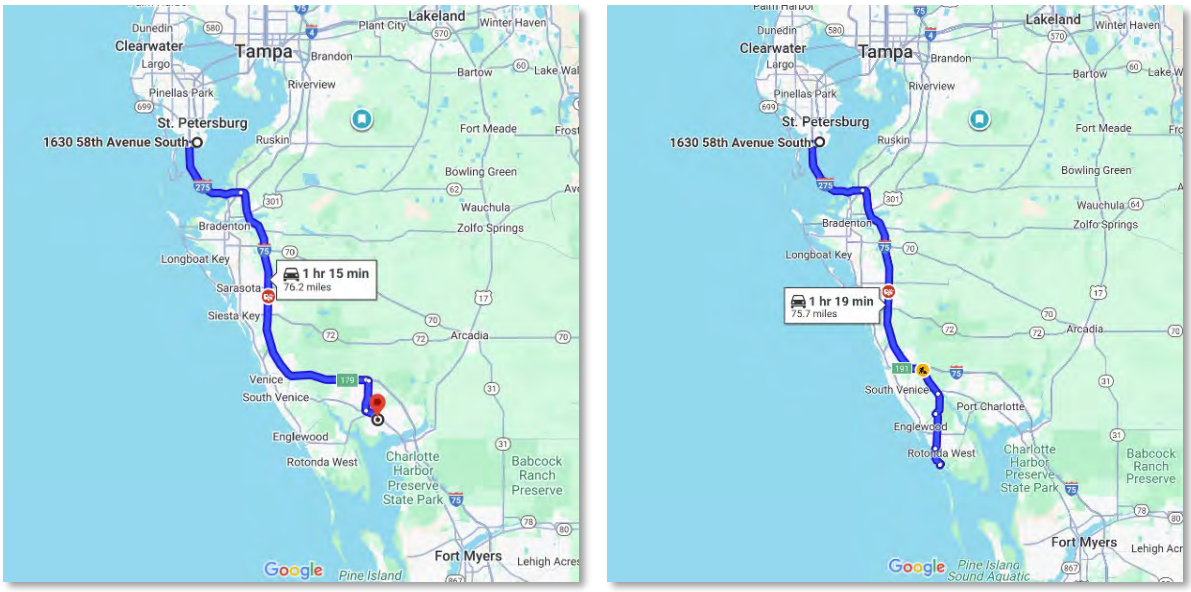
[1] Awaiting notice to proceed from client

[2] Ongoing

Pale Blue Dot Consulting LLC currently has two (2) employees working full-time. In addition to PBD's two full-time staff, PBD's project team includes redundant, qualified subconsultants to assist with field efforts, as needed.

The current physical address for PBD is:

1630 58th Avenue S APT 1, Saint Petersburg, FL 33712



Maps from PBD Office to Approximate Locations of Lakeview/Midway and Cape Haze Service Areas

Tab V.

Proposed Design Approach for the Lakeview/Midway & Cape Haze Projects

Pale Blue Dot Consulting

A. Proposed Design Philosophy

Our approach to the Lakeview/Midway and Cape Haze water quality monitoring program is grounded in a scientifically rigorous, adaptive, and collaborative framework designed to meet the project's overarching goals. Recognizing the critical need for accurate baseline data, the PBD team will implement a comprehensive pre-construction monitoring strategy to establish existing water quality conditions, including nutrient concentrations, bacterial loads, and hydrological dynamics. This foundation will enable meaningful comparisons as the septic-to-sewer transition progresses.

Alignment with regulatory standards is a cornerstone of our philosophy. We will ensure all monitoring activities adhere to FDEP, SWFWMD, and CHNEP guidelines while supporting the objectives of the One Charlotte, One Water Plan, and the existing Reasonable Assurance Plan (RAP) and Basin Management Action Plans (BMAP). Collaboration with Western Michigan University (WMU) and other stakeholders will further refine our methodologies, ensuring they reflect both scientific best practices and local priorities.

Given the extended timelines of the two project areas – Lakeview/Midway's phased construction from 2026 to 2029 and Cape Haze's 10- to 15-year horizon – our design incorporates flexibility to adapt to evolving conditions while maintaining data consistency for long-term trend analysis.

B. Methods and Tools for Groundwater and Surface Water Monitoring

To capture the full scope of water quality impacts, we will deploy a combination of advanced monitoring techniques tailored to the unique hydrological and environmental conditions of each site. Groundwater monitoring will focus on strategically placed multi-depth monitoring wells near septic systems and receiving waters, equipped with data loggers for continuous measurement of key parameters such as pH, conductivity, and water levels. Low flow purging systems will be used during sampling to minimize disturbance and ensure representative results.

Surface water sampling will target tidal-influenced areas like Lemon Bay and Coral Creek and, where necessary, include event-based automated samplers capturing turbidity, dissolved oxygen, and nutrient loads variability during and following storm events. To distinguish septic-derived contaminants from other potential sources, such as agricultural runoff, we will employ stable isotope analysis, pharmaceutical tracers, and microbial source tracking (MST), providing clear evidence of pollution origins.

C. Data Analysis and Interpretation

The collected data will undergo rigorous statistical and geospatial analysis to evaluate contaminant trends and the effectiveness of the septic-to-sewer conversion. Multivariate techniques, such as tests like principal component analysis (PCA) and Spearman rank correlations, will identify correlations between system removal and water quality improvements, while GIS mapping/modelling will visualize contaminant plumes and seasonal variations in groundwater flow. Comparative non-parametric statistical methods, such as Wilcoxon and Kruskal-Wallis, which are higher power test than their parametric versions, will quantify the significance of observed changes. Trend analysis tests will be based on available historical data so this may require short term test with a long-term plan to switch to more sensitive data when sufficient data points are collected. We expect to work closely with WMU as well as Charlotte County project managers to ensure scientific validity and a rigorous peer-review process.

D. Stakeholder Communication and Engagement

Effective communication with stakeholders is essential to the project's success. We will provide monthly technical memorandums to Charlotte County and regulatory agencies, featuring graphical summaries such as heatmaps to illustrate nutrient reductions and other key findings. For the broader community, biannual workshops will translate technical data into accessible insights, addressing resident concerns and fostering

transparency. Additionally, we will deliver targeted presentations to the Board of County Commissioners at critical milestones, ensuring decision-makers are informed of progress and any necessary adjustments.

E. Adaptive Strategies for Evolving Conditions

Given the dynamic nature of environmental monitoring, our program will incorporate iterative reviews to refine methodologies as new data emerges. Quarterly assessments will evaluate the effectiveness of well placement and sampling protocols, allowing for adjustments in response to unforeseen factors such as tidal influences or contaminant hotspots. Contingency reserves will be allocated for additional wells, samples, and specialized lab analyses if initial data reveals gaps. Furthermore, water quality models will be updated periodically to reflect the latest findings, ensuring accurate projections of nutrient load reductions over time.

F. Anticipated Challenges and Mitigation Strategies

Several challenges may arise during the project, including the hydrological complexity of karst geology and tidal effects in Cape Haze. To address this, we will conduct supplemental geophysical surveys to optimize well placement and adjust sampling frequency during high-tide events. Seasonal rainfall variability may introduce data noise, which we will mitigate by extending baseline monitoring to capture both wet and dry season conditions, supported by robust statistical methods.

Regulatory delays could impact timelines, but proactive coordination with FDEP and SWFWMD through designated liaisons will help expedite permitting. Finally, community resistance, though unlikely given the project's benefits, will be preemptively managed through transparent communication, including FAQs and stakeholder meetings to demonstrate the program's role in safeguarding long-term water quality.

Conclusion

Our approach is designed to deliver precise, actionable insights while remaining adaptable to the project's evolving needs. By integrating advanced monitoring techniques, rigorous data analysis, and proactive stakeholder engagement, we will ensure the program's success in achieving Charlotte County's water quality objectives. This strategy not only aligns with the RFP's evaluation criteria but also reflects our team's deep expertise in Florida-centric septic-to-sewer projects, pollution source tracking, and environmental monitoring.

Tab VI.

Present Examples of Recent Accomplished Similar Projects

Pale Blue Dot Consulting

Hudson Beach Pollution/Microbial Source Tracking

Pasco County, FL

Pasco County contracted Florida Design Consultants (FDC) to investigate consistent elevated fecal coliform indicator bacteria counts that led to beach advisories for the Hudson Beach community. FDC contracted Flatwoods Consulting (Eesa Ali's team) to design a study to conclusively determine pollution sources and a source reduction strategy.

Work was completed in three phases, beginning with a desktop and historical records review. This included: 1) performing a correlation study on rainfall, cumulative rainfall, tide, season, and wastewater SCADA from the local private utility; 2) retroactively qualifying FDOH beach monitoring data with state warning point spill data, utility abnormal events, weather, and tide; 3) FDOH Florida Water Management Inventory (spatial data showing properties on septic vs. sewer); 4) and inventory of potential commercial sites of concern.

Phase 2 included designing and implementing an ambient sampling plan, performing microbial source tracking, and conducting reconnaissance ("walk the WBIDs"). In this phase, potential pollution sources were mapped and catalogued, and sampling was performed routinely (weekly) with additional sampling on unidentified outfalls (when active). Eesa worked with the lab to report preliminary results at the 12-hour sample incubation mark, this allowed sources to be identified and resampling to occur expeditiously. Sites determined to be consistently clean were dropped from sampling, reducing costs for Pasco County; resources were redirected to follow results from data analysis.

Phase 3 included source-specific monitoring and source reduction and reconnaissance. Once problematic sites were identified, additional analytes were introduced to the routine suite of samples including qPCR and pharmaceuticals. These specific analytes were introduced to build a solid, legally defensible case that would move property owners to act to reduce pollution sources. Where appropriate, Pasco County Utilities and NI Utilities were engaged to perform dye tracing, smoke testing, and borescoping of utilities and commercial properties.

Project findings were presented at stakeholder meetings at the end of each phase. This study uncovered many pollution sources, the largest of which was a raw sewage line from a mobile home park discharging directly into a canal.

Client/Owner

Juanita Bernal-Leon,
Environmental Project Manager
Pasco County Public Works
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New Port Richey, FL 34654
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jbernalleon@pascocountyfl.net

Services

Water Quality
SCADA Analysis
Microbial Source Tracking
Pollution Source Tracking
Desktop Review
Field Reconnaissance
In-Flow Infiltration Study
Dye-Tracing
Smoke Testing
Utility Borescoping
QA/QC
Public Outreach
Stakeholder Presentations

Project Period

2022 – 2024

Project Fee

$260,000

Project Role

Subconsultant to Florida Design Consultants
FDC Contact: Ed Rogers
813-883-0881
erogers@fldesign.com

Assigned Key Professionals

Eesa Ali, PWS
Brittany Banko
Michael Grzywacz
Ryan Countess

Horse Creek Stewardship Program

Hardee and Desoto County, FL

As a result of proposed mining operations by Mosaic Fertilizer, LLC (Mosaic) in eastern Manatee and western Hardee Counties, Florida, and a series of legal challenges to the permits required for such mining, Mosaic and Peace River Manasota Regional Water Supply Authority (PRMRWSA) executed a settlement agreement structured to ensure that mining would not have negative impacts on Horse Creek, a major tributary of the Peace River. A principal component of that agreement was the creation of the Horse Creek Stewardship Program (HCSP), which is funded and managed by Mosaic.

There are three basic components to the HCSP: 1) monitoring and reporting on stream quality, 2) investigating adverse conditions or significant trends identified through monitoring, and 3) implementing corrective action for any adverse changes to Horse Creek caused by Mosaic's mining activities.

Eesa Ali, at the time a Flatwoods Consulting Senior Water Quality Analyst, coordinated teams conducting water quality and biological sampling that included continuous recording of in-situ temperature, dissolved oxygen (DO), conductivity, turbidity, pH, level, and flow; monthly water quality monitoring of 22 parameters at four sites on the main stem of Horse Creek and one site along Brushy Creek; and triennial sampling of fish, benthic macroinvertebrates, and field water quality parameters.

In addition to producing and presenting the annual report findings, Eesa's team was tasked with performing independent impact studies, creating a quality assurance project plan (QAPP) for the Stewardship Program, auditing and training Mosaic data providers (including lab, field, and contractors), and streamlining annual reporting and workflow. Throughout six years of project optimization, the footprint of the report was reduced by 25%, the appendices reduced by 75%, and the number of statistical analyses increased by 30%. All parametric tests were dropped in favor of non-parametric, high power tests, allowing the team to detect very minute changes in water quality.

Project findings were presented annually to a technical advisory committee consisting of representatives from the PRMRWSA; Charlotte, Desoto, Hardee, Manatee, and Sarasota Counties; and Mosaic.

Client/Owner

Ryan Tickles,
Senior Environmental Scientist
The Mosaic Company
13830 Circa Crossing Dr, Lithia, FL 33547
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ryan.tickles@moaicco.com

Services

Habitat Assessment
Rapid Biological Assessments
Fish, Macroinvertebrate, Macrophytes, and Periphyton Surveys
Water Quality
Flow & Level Analysis
Impact Assessments
Unattended Monitoring Station
QA/QC
Public Outreach
Stakeholder Presentations
Expert Witness

Project Period

2017 – 2024

Project Fee

$294,000

Project Role

Prime Consultant

Assigned Key Professionals

Eesa Ali, PWS
Michael Grzywacz
Robert Wiwi
Ashley Berniche
Ryan Countess

Manatee River Oyster Reef Restoration

Manatee County, FL

The City of Palmetto contracted Moore2Design and Applied Sciences to prepare and apply for a Resilient Florida Grant to install a network of ~276 artificial reef structures in the Manatee River. Eesa Ali, at the time Applied Sciences Senior Scientist, spearheaded the grant writing process, combining aspects of habitat restoration, shoreline protection, and environmental monitoring to showcase benefits of oyster reef restoration on multiple facets of natural and urbanized communities. The grant application included calculations for the volumetric water quality impact of a fully colonized reef as well as considerations for improved protection from shoreline erosion and storm surge.

The Manatee River was previously called the Oyster River, but oyster reefs were mined to use as road base and to improve river navigation. Historical documentation shows that residents have been concerned with the decline of oyster reefs in the river since the early 1800s.

The State of Florida awarded Palmetto a Resilient Florida grant worth $350,000 in 2024. With that grant money and a 50% match from the City, a baseline ecological survey was performed to delineate wetlands and seagrass extent and density; the artificial reef structures were acquired and placed throughout 22 acres of shallow, tidally influenced habitat; navigation and habitat markers were permitted and installed; and routine annual ecological monitoring was conducted to document seagrass extent and density, oyster colonization and density, aquatic biodiversity, water quality, and wave energy throughout the reef and along the shoreline.

This project exemplifies the possibility of helping municipalities receive available grant funding for projects at the cross-section of utility improvements and habitat and water quality improvements.

Client/Owner

Shirley Groover-Bryant,
Mayor
City of Palmetto
516 8th Avenue W,
Palmeta, FL 34221
941-723-4570
mayor@palmettofl.org

Services

Grant Application
Habitat Restoration
Water Quality Monitoring
Seagrass & Macroalgae Surveys
Fish & Macroinvertebrate Surveys
Public Outreach
Stakeholder Presentations

Project Period

2023 – ongoing

Project Fee

~$90,000 annually

Project Role

Subconsultant to Moore2Design
Contact: Jon Moore
941-829-1229
jonmoore@moore2design.com

Assigned Key Professionals

Eesa Ali, PWS
Elie Araj, PE

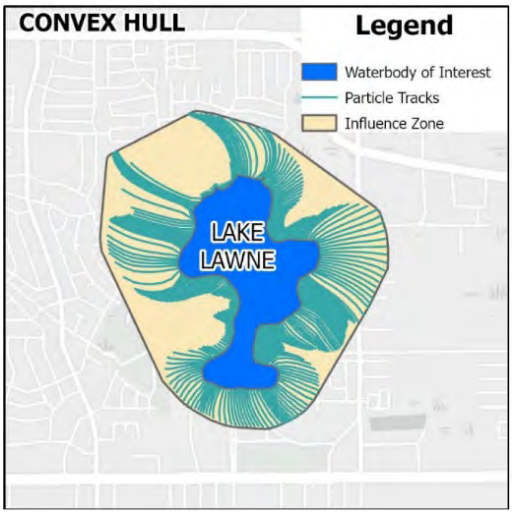
Pale Blue Dot Consulting

Groundwater Vulnerability Assessment

Orange County, FL

Drummond Carpenter completed a multi-faceted assessment of the vulnerability of the Surficial Aquifer System (SAS) to pollution sources across all areas of Orange County. This project was primarily performed to understand the impact of septic systems on waterbodies to prioritize initiatives to address groundwater nutrient contamination, such as septic-to-sewer improvements, septic-to-enhanced septic systems, and changes to administrative rules that govern septic system construction. This project also supported the County's approach to addressing water quality impairments, TMDLs, and BMAPs.

Our first task was the modeling and mapping of SAS vulnerability to predict regions susceptible to nutrient contamination. The modeling considered measured nutrient levels, depth to water, soil hydraulic conductivity, and proximity to karst features. We then mapped all known septic systems (approximately 86,000) and developed a prioritization approach that ranked all existing subdivisions (approximately 14,000) in terms of their need for various septic system retrofits. This screening procedure included septic density, SAS vulnerability, population density, proximity to impaired waters, and other factors.



A countywide groundwater model was developed based on the regional ECFTx model developed by three water management districts. The model tracked fate and transport of nutrients from septic systems to downgradient waterbodies. This was necessary to link water quality considerations from areas of high groundwater nutrient load to potential impact to lakes, rivers, and springs. Modeling of nitrogen and phosphorus within the groundwater system was performed using STUMOD-FL, MODFLOW+MT3D, and HYDRUS 2D. We delineated 66 priority vulnerability areas – areas that represent the ground watershed of various lakes and river systems that most warrant protection measures such as septic-to-sewer or administrative rules that better safeguard waterbodies from septic impairment. Of the 14,000+ subdivisions analyzed, six subdivisions ranked highest in terms of adversely impacting sensitive waterbodies.

We also provided recommendations regarding lake setback minimums, minimum depth to water beneath drainfields, and other regulatory considerations. We conducted extensive public outreach. An updated septic system ordinance was adopted by the County in November 2024.

DC Project No. 21.00125

Client/Owner
Emily Lawson, PE
Orange County Environmental Protection Div.
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Orlando, FL 32803
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Emily.Lawson@ocfl.net

Services
Groundwater Modeling
Water Quality
Fate and Transport of Nutrients
Existing Conditions Analysis
Design Criteria
Public Outreach

Project Period
2021 to 2023

Project Fee
$275,000

Project Role
Prime Consultant

Assigned Key Professionals
Bud Davis, PhD, PG
Nate Holt, PE

DRUMMOND CARPENTER
engineering + research

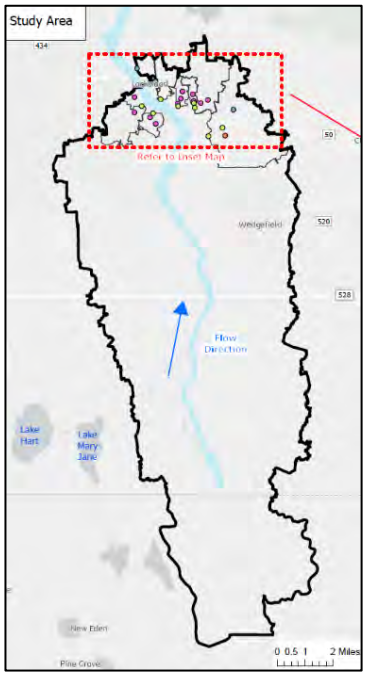
Pale Blue Dot Consulting

Big Econlockhatchee Bacterial Assessment

Orange County, FL

Drummond Carpenter conducted a comprehensive water quality monitoring project to address Escherichia coli (*E. coli*) contamination in the Econlockhatchee River (Econ), particularly where it intersects with Long Branch Creek. The resulting Analysis and Implementation Plan identified *E. coli* hotspots; evaluated contributing sources in the watershed; and provided recommendations for best management practices (BMPs) and future management actions.

Over a 14-month period, 179 *E. coli* samples were collected from nine basins within the larger Econlockhatchee system. Hotspot analysis confirmed the study area contains bacteria hotspots and identified sites XBES11S, XBES12S, XBES14S, and XBES15S as the greatest contributors of *E. coli* contamination. Microbial source tracking (MST) analysis detected the presence of human, dog, and cow biomarkers, indicating fecal contamination is derived from multiple species. The widespread presence of sucralose in 62 of 64 water samples indicated human wastewater impacts across all sampled sites.



There is no single source of contamination, such as a sewer leak or contamination from a single agricultural ranch. Rather, contamination is likely a result of many sources, including degrading wastewater infrastructure, septic systems, mobile home park wastewater lagoons, agricultural activities, and pet waste. Cow MST contributions to the waterway may be a product of current agricultural use, a legacy effect from past agricultural land use, or a combination of these factors. Thus, solutions to remedy bacterial contamination will need to address diverse contributing factors.

Recommendations included future monitoring in upstream areas using rain-based sampling, autosamplers, or adjusted analytes; exploring feasibility options for storm-based sampling; and implementing non-structural and structural BMPs upon identification of contamination sources. Non-structural BMPs could include outreach to increase the use of agricultural BMPs; installing dog waste bags at select park sites; and enhancing the County's current NPDES education program to include specific guidance on *E. Coli* contamination. Structural BMP concepts were included with the recommendation that additional monitoring is conducted prior to initiating full design of the structural BMPs.

DC Project No. 23.00242

Client/Owner
Robert Renk
Orange County Environ. Protection Division
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Orlando, FL 32803
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Services
Surface Water Monitoring
Water Quality Assessment
Best Management Practices
Site Analysis
Field Investigation

Project Period
2023 to 2024

Project Fee
$198,017.12

Project Role
Prime Consultant

Assigned Key Professionals
Katie Bowes, PWS
Emily Hartdegen, PWS
Callie Hathorn, WPIT

DRUMMOND CARPENTER
engineering + research

Lake Hickorynut Feasibility Analysis

Orange County, FL

Drummond Carpenter conducted a feasibility assessment of an existing stormwater pond (Orange County Pond ID 7971) immediately adjacent to Lake Hickorynut to assess the water quality treatment performance of the pond and to develop recommendations on how water quality treatment of the dry retention pond could be improved to protect Lake Hickorynut. Activities included field reconnaissance and equipment installation, surface and groundwater monitoring, groundwater fate and transport modeling, hydrologic and hydraulic modeling, and performing a conceptual feasibility analysis.

A groundwater fate and transport model using HYDRUS 2D/3D was developed to assess groundwater and water quality transport through the stormwater pond to Lake Hickorynut. An existing conditions 1D ICPR4 model of Pond 7971 was developed and included design storms for the 10-year, 25-year, and 100-year 24-hour storm events, with the peak stage and discharge recorded for each design event and was used as a basis to compare against the conceptual alternatives. Ultimately, it was found that the dry pond rarely discharges surface water to Lake Hickorynut, and elevated groundwater loading was likely occurring.

Drummond Carpenter conceptualized groundwater nutrient reduction media to be installed along various locations within the pond and modeled the effectiveness of this passive groundwater treatment BMP.

Client/Owner
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Services
Feasibility Analysis
Conceptual Design
Field Investigation
H&H Modeling
Groundwater Modeling
Monitoring

Project Period
2021 to 2022

Project Fee
$68,807

Project Role
Prime Consultant

Assigned Key Professionals
Nate Holt, PE
Bud Davis, PhD, PG

DRUMMOND CARPENTER
engineering + research

Tab VII.

Describe the Team's Experience and Capabilities in the Following Areas

Pale Blue Dot Consulting

A. Cost Optimization in Program Design.

The Pale Blue Dot team brings considerable experience in designing and executing cost-optimized environmental programs, particularly in water quality monitoring, compliance, and ecological restoration. Eesa's background includes leading surface water audits across Florida and implementing large-scale monitoring networks with a clear emphasis on operational efficiency. His work designing and deploying unattended water quality monitoring stations and automated sampling protocols has saved clients time and resources while maintaining rigorous data quality standards. On high-profile projects like the Horse Creek Stewardship Program and Pasco County's Hudson Beach microbial source tracking, he developed technical solutions that balanced compliance goals with cost-effective field strategies, demonstrating his ability to reduce monitoring burdens without compromising scientific integrity.

The PBD team has consistently applied cost-efficient methods in ecological monitoring and permitting work across large-scale utility, mining, and development projects. Ryan has managed wetland mitigation and monitoring programs that involved both small and landscape-scale sites, often designing practical monitoring solutions, coordinating subcontractors and team schedules, limiting unnecessary field labor or costly rework, and streamlining data collection and analyses. Together, their field-tested methodologies, regulatory knowledge, and real-world project management skills underscore a strong organizational commitment to cost optimization in program design.

Drummond Carpenter, our subconsultants leading the water quality modelling for this project, approaches cost optimization in program design with a focus on practical, data-informed strategies that minimize waste and maximize long-term value. Throughout their work, the firm emphasizes the importance of leveraging existing data and infrastructure to reduce duplication of effort and avoid unnecessary expenditures. For example, in their ongoing work with Seminole County on the Big/Little Econlockhatchee River and Howell Creek drainage basin studies, Drummond Carpenter integrates in-house stormwater GIS databases to streamline workflows and reduce project costs. This approach ensures that resources are spent on advancing outcomes rather than recreating information that already exists.

Additionally, for the City of Orlando Drummond Carpenter developed a water quality data reporting system that largely automates the development of NPDES annual report data. Using water quality data originally warehoused in the city's LIMS water quality database, we developed customized Python scripts to collate, analyze, and publish lake water quality into tables and charts that are then used in the annual reports. The statistical routines we developed enabled the City to have more confidence in assessing long-term and short-term water quality changes in each of their 80 monitored lakes. We estimate that this helped reduce City staff time from approximately 200 hours a year to create this data, down to 20 hours per year or less– a significant savings in staff time.

B. Project Schedule and Workflow Management.

PBD have demonstrated strong capabilities in project schedule and workflow management through years of coordinating large, multi-faceted environmental programs across Florida. Eesa has led field teams for complex water quality sampling efforts, including the Horse Creek Stewardship Program, Hudson Beach pollution source tracking, and district-wide surface and groundwater monitoring for the Suwannee River Water Management District, where he managed timelines involving rapid field collections correlated with rainfall, rapid data analysis to and reporting to track and respond to potential pollution sources, QA/QC reviews, and stakeholder coordination. His experience developing training programs, quality assurance protocols, and emergency response plans further reflects his ability to manage workflows under high-pressure, high-stakes conditions. Ryan has similarly managed projects with tight regulatory deadlines,

including mitigation bank monitoring and rapid-turnaround utility corridor wetland delineations, wildlife surveys, and permitting.

The PBD team are currently supervising erosion control and stormwater pollution prevention plan (SWPPP) monitoring and compliance that requires site visits after heavy storm events and have recently coordinated with clients and permitting agencies on wetland delineation reviews and gopher tortoise relocations. Their combined experience shows a clear history of delivering technical environmental services on time and in compliance with both internal standards and external regulatory requirements.

Drummond Carpenter has a proven history of managing complex environmental projects with disciplined schedule control and seamless workflow integration. Their current work with Seminole County on the Howell Creek and Big/Little Econlockhatchee basin studies highlights their ability to coordinate modeling, data analysis, stakeholder engagement, and reporting under tight timelines. The firm's use of automation and digital tools, such as GIS-based data collection and reporting platforms, enhances efficiency and reduces delays.

C. Environmental Assessment.

PBD brings deep expertise in conducting environmental assessments across a wide range of aquatic, wetland, and terrestrial ecosystems. Eesa's background includes over two decades of experience leading biological assessments, water quality studies, and pollution source tracking efforts throughout Florida. His work with the Florida Department of Environmental Protection and later with private firms involved detailed assessments of surface waters, wetlands, and habitat quality, often in support of NPDES compliance, TMDLs, and BMAPs. He has assessed environmental conditions following major industrial discharges and natural disasters, including work on the Deepwater Horizon oil spill response. Ryan's experience complements this with a strong focus on wetland delineations, vegetation- and hydrologic-based assessments, and environmental permit compliance. Whether evaluating vegetative health, hydrology, or wildlife habitat, PBD's professionals have shown a consistent ability to deliver thorough, data-driven environmental assessments that inform permitting, restoration, and long-term management strategies.

Drummond Carpenter's varied experience conducting environmental assessments have informed both policy development and project implementation. Their work on Orange County's "State of the Wetlands" study is a prime example, where they evaluated changes in wetland acreage, habitat types, and ecological function over a multi-decade span. This assessment, which also included field evaluations of over 50 mitigation sites and a modeling analysis of hydrologic changes due to development, directly supported the drafting and adoption of a new wetland protection ordinance in 2023. Beyond wetlands, the firm has led sediment and water quality assessments for multiple lakes – including Lake Anderson, Big Sand Lake, and Lake Mary Jane – to identify internal pollutant loads such as phosphorus and lead. These efforts involved detailed sampling, laboratory analysis, and development of remediation strategies, demonstrating the team's ability to conduct thorough, science-based assessments that lead to actionable outcomes for natural resource protection.

D. Specialized Water Quality Monitoring Experience.

The team brings a high level of technical expertise in specialized water quality monitoring, with experience spanning ambient, event-based, and continuous monitoring across freshwater and estuarine systems. Monitoring programs have included the design and deployment of long-term, unattended water quality and flow stations, supporting efforts like the Horse Creek Stewardship Program and Hudson Beach microbial source tracking initiative. These projects required integrating precise field techniques with advanced instrumentation, including autosamplers, flow meters, and continuous data loggers, all calibrated and operated under strict QA/QC procedures. The work consistently involved sampling for both chemical and

biological parameters, such as nutrient concentrations, bacteria levels, and bioindicators, all collected and analyzed according to FDEP standards to ensure data reliability and regulatory compliance.

In addition to field execution, the team has led efforts in developing comprehensive quality assurance project plans, validating large datasets, and performing training on sampling protocols, data integrity, and instrumentation. Their work has supported a variety of regulatory programs, including NPDES compliance audits, BMAP implementation, TMDL and WQBEL studies, and numeric nutrient criteria assessments. Specialized tasks have included microbial DNA tracking to isolate pollutant sources, stormwater sampling for pollution prevention planning, and post-disaster monitoring for utilities and municipalities. These experiences highlight a consistent ability to implement monitoring programs that are both scientifically rigorous and adaptable to the complex conditions of fieldwork, while also meeting the specific needs of public and private sector clients.

Groundwater/Surface Water Interaction related to Water Quality

DC has expertise in water quality processes, statistical and geospatial analysis, and surface water, hydrodynamic, vadose zone, and groundwater flow and water quality modeling. This expertise uniquely positions DC with the ability to evaluate monitoring projects for a wide variety of applications and project goals. For example, DC used results from stormwater monitoring and sampling in conjunction with stormwater, vadose zone, and groundwater flow modeling in a BMP feasibility analysis where BMP effectiveness was evaluated in terms of pollutant reductions while accounting for both the surface water and groundwater pathways.

DC develops unsaturated zone and groundwater fate and transport conceptual models; analyzes water quality data and trends; installs monitoring wells; evaluates nutrient sources through isotopic source tracking, and develops unsaturated zone and groundwater flow and transport models to evaluate the impacts of nutrients introduced through fertilizer and septic systems on water bodies, including springs. Such services to Orange County, FL, helped Orange County successfully update its septic system and fertilizer ordinances to reduce nutrient impacts to the County's groundwater and vulnerable surface water bodies.

Monitoring/Sampling

PBD and DC staff routinely perform sampling of stormwater flow and stage (manual and fixed station), riverine flow, surface water quality sampling, storm event automated sampling, groundwater well installation oversight and sampling, and lake sediment sampling. We have also modeled most of these processes using variable approaches that range from simplistic spreadsheet-based models to highly complex 4-D (3-D modeling + time) fate and transport models of water contaminants through surface and groundwater systems.

DC project field staff are experienced in overseeing and interpreting novel sampling procedures, including groundwater tracers such as sucralose, isotopes, and microbial source tracking methods. These sample types can easily be misapplied or misinterpreted and result in incorrect or inconclusive findings from inexperienced teams. DC performs isotopic data collection, isotopic mixing model development (for source attribution), groundwater tracer analysis, and bacteria source tracking using specialty DNA laboratory techniques. DC is also experienced in collecting biological samples, including macroinvertebrates, zooplankton, algae, and aquatic macrophytes.

As with all monitoring projects, confidence in data integrity and results are paramount. That is why DC prioritizes QA/QC protocols for sampling and reporting. We do not simply pass along laboratory reports to the client; DC provides a thorough QA/QC of the data first.

E. Data Modeling and Analysis for Water Quality.

The PBD team's experience analyzing water quality data to support regulatory compliance, ecological assessments, and long-term monitoring programs spans decades. Their work has involved synthesizing large datasets collected from ambient and event-based sampling efforts on projects ranging from monitoring point-sources (NPDES wastewater discharges) to entire streams or basins (such as the Horse Creek Stewardship Program) to entire Water Management Districts (including the ad-hoc surface and groundwater monitoring for Suwannee River Water Management District, or monitoring vegetative and hydrologic changes in over 100 wetlands for the Southwest Florida Water Management District's Wetland Assessment Procedure). Tasks have included data collection and validation, statistical interpretation of trends, and preparation of annual reports that inform BMAP implementation, NPDES permit compliance, mitigation performance, and more. The team has also developed and implemented QA/QC protocols and quality assurance project plans, ensuring the integrity of both field data and analytical results. Their ability to integrate environmental data with regulatory frameworks and present it in a clear, actionable format reflects a strong command of both technical analysis and applied water resource management.

Drummond Carpenter's staff complement PBD's expertise by excelling at several different types of hydrodynamic modeling (e.g., ICPR4, HEC-RAS, RMA2, MIKE suite, MODFLOW, SWMM, etc.), water quality modeling (e.g., RMA4, MODFLOW-MT3D, etc.), and water quality statistical analysis for all types of water systems, which can take the measured data we collect and apply it across regions of interest to gain knowledge of the natural system.

In addition to hydrodynamic modeling, pollutant load modeling is a helpful tool that can quickly, and cost-effectively, analyze pollutant load 'hot spots' within a jurisdiction. Due to the literature-derived nature of these models, they can be very sensitive to user input and therefore require experienced users to ensure proper assumptions and modeling techniques. For the City of Orlando, Drummond Carpenter developed a citywide pollutant loading model using the SIMPLE Seasonal tool. This GIS-based model incorporates land use, soil type, impervious area, stormwater BMPs, point sources, and groundwater sources to provide a comprehensive view of pollutant loading. DC used this model with available water quality monitoring data and demonstrated through spatial statistics that the pollutant load model accurately predicted where water quality would generally be good or poor, thus confirming its utility as a planning tool.

F. Regulatory Compliance and Integrated Water Quality.

Pale Blut Dot's experience supporting regulatory compliance and advancing integrated water quality strategies across Florida includes a solid foundation in NPDES permitting, TMDL monitoring, BMAP implementation, wetland permitting and mitigation compliance, and stormwater pollution prevention. Their work has involved leading compliance inspections and audits for wastewater and stormwater systems across dozens of counties, evaluating discharge monitoring reports, assessing receiving waters, and performing biological assessments in support of regulatory thresholds. Projects such as annual MS4 biological assessments in Pasco County, NPDES stormwater monitoring in the Hillsborough River, and long-term monitoring for the Horse Creek Stewardship Program illustrate their ability to align field protocols and data reporting with complex regulatory frameworks. The team has also authored and implemented stormwater pollution prevention plans (SWPPPs) for large-scale infrastructure projects, ensuring both construction-phase compliance and long-term site protection. Their direct engagement with FDEP, EPA,

and local agencies, along with experience crafting quality assurance project plans and technical reports, reflects a deep understanding of how to navigate regulatory systems while advancing broader watershed health objectives.

Drummond Carpenter brings extensive experience navigating the complex regulatory landscape of water quality management, with a strong focus on integrating compliance with broader environmental goals. The firm has supported multiple counties, particularly Orange and Seminole, with wetland and hydrology monitoring and modelling, often translating regulatory requirements into practical, science-based solutions. For example, their work in Orange County led to the development and adoption of updated ordinances on fertilizer use and septic systems – both grounded in modeling and monitoring data that demonstrated clear links between land use practices and nutrient loading to surface waters. They have also conducted microbial source tracking to support fecal TMDL compliance in the Big Econlockhatchee River, combining DNA analysis with field investigations to identify and mitigate pollutant sources. Their staff's familiarity with FDEP, water management districts, and local permitting agencies ensures that projects not only meet regulatory thresholds but also contribute to long-term, integrated water quality improvements across jurisdictions.

G. Stakeholder Coordination and Engagement.

The team has considerable experience coordinating with diverse stakeholders and delivering clear, actionable information to regulatory agencies, private clients, and the public. Their work has involved presenting technical findings to advisory panels, managing public outreach efforts for water quality and ecological monitoring programs, and coordinating with clients, contractors, regulators, and community representatives. For example, during the Horse Creek Stewardship Program, Eesa contributed to stakeholder engagement efforts by preparing annual reports, delivering presentations to a technical advisory panel, and responding to agency feedback to ensure project alignment with both regulatory expectations and community concerns. Eesa additionally developed and instructed training workshops on water quality sampling and data integrity for industry clients, fostering informed decision-making and regulatory compliance. Their ability to translate complex scientific data into meaningful guidance reflects a strong capacity to engage stakeholders at every level of project planning and implementation.

Drummond Carpenter has consistently demonstrated a thoughtful and effective approach to stakeholder coordination and engagement, ensuring that technical solutions are understood and supported by the communities they serve. Their ongoing work with lake advisory boards in Orange County, such as those for the Conway and Butler Chains of Lakes, showcases their ability to communicate complex restoration strategies in accessible ways and incorporate public feedback into project planning. In Seminole County, they've provided public meeting support for watershed studies, helping residents understand how proposed improvements will affect their neighborhoods. Their team includes certified charrette facilitators and design specialists who create compelling visualizations and renderings to aid in public presentations, which has proven especially valuable in securing buy-in for projects involving visible changes like BMP installations or lake treatments. This emphasis on transparency and collaboration ensures smoother implementation and builds lasting community trust in environmental initiatives.

H. Technical Reporting and Presentations.

The team's experience with technical reporting and presentations is rooted in field-based work that demands accuracy, clarity, and relevance. Across projects like the Horse Creek Stewardship Program and MS4 compliance monitoring in Pasco County, they've produced detailed reports that translate raw environmental data into clear, regulatory-ready documentation. These reports go beyond data dumps – they interpret trends, flag compliance issues, and outline next steps in language that's accessible to

regulators, engineers, and community stakeholders alike. Their reporting often supports permit applications and renewals, annual compliance updates, and multi-agency reviews, which means the content must hold up to scrutiny from multiple perspectives. They've also developed and led workshops on data integrity and monitoring methods, presenting complex protocols and findings in ways that teams on the ground can apply immediately. No project exemplifies PBD's reporting and presentation capabilities like the Horse Creek Stewardship Program, where Eesa led a team that reduced the length of the report while increasing the amount of data presented (a reduction in superfluous and redundant text while increasing tables, charts, and other figures). This report optimization translated into the annual stakeholder presentations where Eesa explained and defended the rigorous sampling and analysis methodologies, water quality trends, and permit compliance by the client to a peer reviewed board of officials representing multiple counties, SWFWMD, DEP, USACE, Mosaic, and other local stakeholders.

Drummond Carpenter has a strong history of producing clear, impactful technical reports and presentations tailored to both expert and public audiences. Their work frequently supports decision-making at the highest levels of local government, as seen in their presentations to the Orange County Board of County Commissioners on updates to critical environmental ordinances covering wetlands, fertilizers, and septic systems. These presentations are backed by rigorous technical analysis and often include 3D visualizations and GIS-based story maps to enhance clarity and engagement. The team's leadership has also provided expert witness testimony in regulatory hearings, including a successful Florida Department of Administrative Hearings case where their project manager's testimony was cited as a deciding factor in the final ruling. Whether presenting to elected officials, advisory boards, or the lay public, Drummond Carpenter consistently delivers well-structured, visually supported reports and presentations that make complex environmental data accessible and actionable.

Drummond Carpenter completed a multi-faceted assessment of the vulnerability and impacts of septic systems to the Surficial Aquifer System (SAS) and other surface water resources in Orange County. This project included analyzing the potential impact of the approximately 90,000 septic systems within Orange County and providing prioritization recommendations for the County to pursue septic-to-sewer conversions/retrofits or other septic system interventions that will address impaired waters, TMDL, and BMAPs within the County. Drummond Carpenter developed a countywide aquifer vulnerability assessment that scored the relative risk that septic system pollutants pose to the SAS based on publicly available environmental and water quality data. The relative vulnerability was then used in conjunction with a countywide fate and transport groundwater model to assess flow direction, travel times, and groundwater flux to downgradient water resources. Water quality modeling of septic plumes helped identify the systems that are most likely contributing to nutrient pollution of lakes and river systems. Finally, these findings were used to develop 66 priority focus areas for specific waterbodies that the County can pursue septic interventions in, such as septic-to-sewer retrofits, conventional-to-advanced septic replacement, and policy and rule modifications to discourage conventional septic system usage in vulnerable areas. This project culminated in the passage of new septic ordinances that codified minimum lake setbacks, requirements for enhanced septic systems, and other new rules that will protect the County's water resources. This ordinance was adopted by the Board of County Commissioners in December 2024.


Appendix I
Resumes & Certifications
of Key Personnel
Pale Blue Dot Consulting

Eesa Ali

eesa@pbdcs.com | 904-813-1298

4922 Bola Street, New Port Richey, FL

Expertise

Water Quality and Wastewater Compliance

Aquatic System Evaluation

Wetland Ecology, Delineation, Evaluation, and Permitting

Wildlife Ecology

Environmental Resource Compliance

Education

B.S., Biology, University of North Florida

Certifications

Society of Wetland Scientists Professional Wetland Scientist #3644

FDEP Rapid Biological Assessment (SCI, HA, RPS, LVS, RPS, and LVI)

FDEP Groundwater, Surface Water and Wastewater Sampling Certification

FDEP Qualified Stormwater, Erosion, and Sediment Control Inspector, #9301

FSA Level II Stormwater

40- Hour OSHA HAZWOPER Trainer

US Department of Labor MSHA 30 CFR Part 46 and Part 48 Certifications

NAUI Open Water Diver

CPR and First Aid, 2023

Memberships & Affiliations

Former President – Board of Directors - Florida Lake Management Society (FLMS)

Former Education, Conference, & Membership Committee Member, Florida Stormwater Association (FSA)

Florida/Tampa Bay Association of Environmental Professionals (FAEP/TBAEP)

Eesa Ali has twenty-two years of experience (eleven months with PBDC) performing audits on surface water discharges throughout Florida. He has been trained by the Florida Department of Environmental Protection (FDEP) in ambient water sampling and water quality evaluations, including being certified in Habitat Assessments (HA), Stream Condition Index (SCI) & Lake Vegetative Index (LVI). Other areas of expertise include, National Pollutant Discharge Elimination System Compliance Enforcement Inspections (NPDES CEI), Planning and Monitoring associated with Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), and wetland delineations. Eesa also instructs on rapid biological assessments, water quality sampling techniques, instrument calibration and data verification, and quality assurance & control (QA/QC).

Pale Blue Dot Consulting, LLC.

Principal Consultant, Tampa, FL — *March 2024 - present*

Water Resource Assessment · Ecological Assessments · Living Shorelines · Wetland Delineation · Listed Species Surveys · Environmental Statistics · Business Development

Applied Sciences Consulting Inc.

Senior Scientist, Tampa, FL — *2023 - 2024*

Grant Writing · Water Resource Assessment · Living Shoreline Design & Restoration · Ecological Assessment · Environmental Permitting · Stormwater Compliance Inspections

Flatwoods Consulting Group Inc. (now Verdantas)

Senior Water Resource Analyst, Tampa, FL — *2017 - 2024*

Water Resource Assessment · Wetland Delineation · Listed Species Surveys · Rapid Biological Assessments · Wetland Monitoring · Environmental Permitting · Quality Control/ Quality Assurance

JEA (FKA Jacksonville Electric Authority)

Environmental Incident Coordinator, Jacksonville, FL — *2015 - 2017*

Emergency Response · Environmental Assessment · Water Quality & Fuels Laboratory Analysis & QA/QC · Public Outreach · Clean-up Contractor Supervision

Sarasota County Mosquito Management Service

Environmental Biologist III, Sarasota, FL — *2014 - 2015*

Assessed Spray Mission Effects on Non-Target Species · Integrated Pest Management (IPM) Research · Mosquito Fish Aquaculture · Disease Surveillance · Public Outreach · Media Relations

Florida Department of Environmental Protection

SWIM Coordinator & Scientist, Jacksonville, FL — *2003 - 2014*

NPDES Wastewater Audits · Compliance & Enforcement Inspections · QA/QC · Aquatic Resource Studies supporting: NPDES Permitting, Water Quality-Based Effluent Limitation Studies (WQBELS), Site-Specific Alternative Criteria (SSAC), Numeric/Narrative Nutrient Criteria NNC, Evaluation of New Technology/Methodologies, Pollution/Microbial Source Tracking (PST/MST), Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), Emergency Response, Emerging Substances of Concern (ESOCs), and Human Health Criteria · Workshops for Staff and Regulated Entities: Water Quality and Instrumentation, HAZWOPER, Spatial Analysis in Geographic Information System (GIS), Rapid Biological Assessments, and Data Integrity

Surface Water Monitoring Expertise

Lead audit teams to evaluate NPDES wastewater discharges, discharge monitoring reports (DMRs), flow and water quality instruments, and receiving waters (marine and freshwater) in the largest district (21 Counties in Florida and several in Georgia). Receiving water assessments included water chemistry, in-situ measurements, flow and velocity measurements, biological assessments, evaluation of habitat quality in surface waters and wetlands, and installation of unattended monitoring stations. Lead teams of biologists and environmental scientists on large-scale water quality sampling, biological assessment, and flow measurement missions to support ambient monitoring, Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), Water Quality-Based Effluent Limitation Studies (WQBELs), Site-Specific Alternative Criteria (SSAC), Microbial Source Tracking (MST), Pollution Source Tracking (PST), septic to sewer projects, emergency response (including the 2010 Deepwater Horizon Oil Spill), evaluating new technologies and methods, and impact assessment studies related to mining and heavy industry, utilities, point and non-point source pollution, residential encroachment on surface waters, stormwater, manmade and natural disasters, and land use changes. Designed, permitted, and built long term unattended water quality and flow monitoring stations.

Developed water quality training and auditing programs including:

- Sampling and auto-sampling in surface water, groundwater, stormwater, and wastewater
- Instrument calibration and verification
- Data validation & QA/QC
- Aquatic habitat assessment and rapid biological assessments in streams, rivers, lakes, and wetlands
- Flow measurements
- GIS for project management including running Landscape Development Intensity Index (LDI) spatial analysis in riparian buffers

Composed Quality Assurance Project Plans (QAPP) and QA/QC manuals for clients and teams.

Designed Stormwater Pollution Prevention Plans (SWPPP) for large-scale utility projects (hundreds of miles). These plans included ecological surveying of the entire project area and the mapping of habitats, hazards, avoidance areas, alternative routes, wetlands, burrows, and nests.

Developed comprehensive integrative pest management (IPM) plans which included pollution prevention planning for treatment missions, storage, and transport of pest control substances.

Project Examples

- Hudson Beach Pollution/Microbial Source Tracking. (Pasco County). *Hudson Beach/Pasco County*. Completed August 2024; Contract $260,000.
- Biological Assessments and Delineation of Critical Habitats. (Pasco County) *Bear Creek and Pithlachascotee River, Pasco County.* Status: Ongoing; Contract $265,000.
- Annual MS4 Compliance Biological Assessments in Six River Systems. (Pasco County) Pasco County. Completed March 2018 - 2022; Contract $16,000/year.
- District-Wide Ad Hoc Surface Water and Groundwater Monitoring Services. (Suwannee River Water Management District {SRWMD}) SRWMD. Ongoing; Contract $2,600 - $20,000.
- Horse Creek Stewardship Program (HCSP): Ecological Monitoring, Impact Assessment Studies, Annual Reporting, Quality Assurance Project Plan (QAPP), Stakeholder Engagement Presentations, and Technical Advisory Panel 2018-2023. (The Mosaic Company) *Hardee and Desoto Counties*. Completed July 2018 - 2024; Contract $97,000/year (annual report) and $85,000 - $120,000 (impact studies).
- Horse Creek at State Road 64 Unattended Water Quality Monitoring Station: Design, Permit, and Build. (The Mosaic Company) *Hardee and Desoto Counties*. Completed January 2024; Contract $60,000
- National Pollution Discharge Elimination System (NPDES) Stormwater Compliance Monitoring: 3 sites in the Hillsborough River. (City of Temple Terrace) *Hillsborough River, Hillsborough County*. Completed in August of 2023 and 2024; Contract $36,000/year.
- Water Quality Sampling and Data Integrity Workshop Series. (The Mosaic Company) *Polk County.* Ongoing; $6,500/workshop.
- Water Quality and Data Integrity Audit. (The Mosaic Company) Polk County. Completed November 2022; Contract $11,000.
- Living Shoreline Design and Permitting. (LAV Engineering) *Creekside Apartments, New Smyrna Beach, Volusia County*. Completed April 2024; Contract $10,700.
- Manatee River Oyster Reef – Resilient Florida Grant Application, $350,000 awarded. (City of Palmetto) *Manatee County*. Completed August 2024; Contract $12,000. Manatee River Oyster Reef – Water Quality, Submerged Aquatic Vegetation, & Fauna Monitoring. (City of Palmetto) *Manatee County*. Ongoing; Contract value $90,000/year.

- Jungle Prada Living Shoreline and Wave Attenuation: Design, Permitting, Build, and Ecological Monitoring (seagrass survey and wetland vegetation transects). (City of St. Pete Beach) St. Pete Beach/ Pinellas County. Ongoing, currently in permitting phase; Contract ~$350,000.
- Quality Assurance Plan for Water Quality and Biological Assessments. Applied Science. Completed December 2024; Internal Client, 100 hours of work
- Hidden Creek Development: Stormwater Pollution Prevention Plan (SWPPP) and Compliance Monitoring. (Kolter Land Development) Pasco County. Completed October 2023; Contract $85,000.
- Annual MS4 Compliance Biological Assessments in Six River Systems. (Pasco County) Pasco County. Completed March 2018 - 2022; Contract $16,000/year.
- King Lake Water Quality Monitoring and Biological Assessment (Lake Vegetation Index). (Heidt Design) Pasco County. Completed January 2022; Contract $84,000/year.
- Ichthyological and Stream Habitat Assessments in restored, created, and reconnected streams post-mining: Altman Tract. (Manatee County & The Mosaic Company) Manatee County. Completed April 2022; Contact $26,000.
- Wastewater NPDES Compliance – water quality and biological assessments (SCI, HA, LVS, RPS, NNC) in receiving surface waters. (Brown and Caldwell) Hardee, Hillsborough, Manatee, and Polk County. Completed March 2018 - 2023; Contract variable ($11,000 - $60,000).
- Stream Mapping and Habitat Assessments for Mitigation Bank Permitting and Monitoring. (Rock Bend Ranch). Desoto and Hardee County. Completed December 2022; Contract variable ($35,000).
- Annual Stream Assessment (HA) of Reference Non-Mined Streams: Wingate Mine. (The Mosaic Company) Manatee County. Completed March 2018 - 2023; Contract $11,000/year.
- Stormwater Pollution Prevention Planning (SWPPP) and monitoring along transmission lines, easements, substations, and laydown yards. (Duke Energy) Throughout All of Florida. Various projects: SWPPP and erosion control plan ($1,000 - $5,000); weekly monitoring, post-storm monitoring, and post-construction monitoring ($1,500 - $10,000 per event).

Public Service Project Examples

- Lead NPDES compliance enforcement inspections (CEI) and audits of all domestic and industrial wastewater plants in 21 counties throughout Florida. This included biological assessments and water quality studies of receiving waters and wetlands. DEP, 2003 – 2014.
- TMDL monitoring (water quality, numeric/narrative nutrient criteria (NNC) assessments, biological assessments), ambient sampling, pollution source tracking, WQBELs, BMAPs, SSAC, eco-summaries of water bodies, event based composite sampling, Harmful Algal Bloom response (sampling, water quality, algal taxonomy, and response), environmental emergency/spill response. DEP, Sarasota County, JEA 2003 – 2017.
- Lower St Johns River (LSJR) Basin Management Action Plan (BMAP) Monitoring. (LSJR Technical Advisory Committee & DEP) Duval and Clay County. DEP & JEA 2003 – 2017.
- Lower St Johns River (LSJR) Tributaries Basin Management Action Plan (BMAP) Monitoring and Microbial Source Tracking. (LSJR Tributaries Technical Advisory Committee & DEP) Duval and Clay County. DEP & JEA 2003 – 2017.
- Ad Hoc Post-Disaster Stream, Stormwater, Groundwater, Potable Water, and Lake Monitoring. (City of Jacksonville, Clay County, Nassau County, St Johns County, DEP, USCG, & FDOT) Northeast Florida.
- Post-natural disaster response including systemic utility failures, count-wide sanitary sewer overflows, wastewater pipe blow outs, transformer explosions/leaks, hazardous waste spills, petroleum spills, hydraulic fluid spills, ash fallout response, coal/petcoke spills, tank farm fires, wildlife strandings, shoreline cleanup assessment (Florida Planning Team Deepwater Horizon). DEP & JEA, 2003 – 2017.
- Compliance Potable and Ad Hoc Boil Water Advisory Sampling (bacteria and residual chlorine), Analysis, and Notification in Clay, Duval, Nassau, & St Johns County. DEP and JEA, 2003 – 2017.
- Impact assessment of legacy pollution in urban and rural streams- bioaccumulation, population diversity, and water quality. Sarasota County, 2014 – 2015 (not completed due to federal government shutdown).

Ryan Countess

ryan@pbdcs.com | 256-656-6282

1630 58th Avenue S. Apt 1, St. Petersburg, FL

Expertise

Wetland Delineation, Evaluation, Monitoring, and Permitting

Environmental Permit Compliance

Wildlife Ecology

Natural Resource Management

Education

University of Florida
Graduate Certificate in Ecological Restoration (2024)

Florida Southern College
B.S. Environmental Science (2015)

Certifications

ISA Certified Arborist, FL- 10233A

FWC Authorized Gopher Tortoise Agent, GTA- GTA-19- 00097

FWC Burrowing Owl Agent

FDEP SOPs for Water and Groundwater Sampling & Meter Testing

FDEP Qualified Stormwater Management Inspector #43634

FDEP Rapid BioAssessments: HA, LVS, RPS, LVI; SCI in progress

SWFWMD Wetland Assessment Procedure (WAP)

NAUI & IANTD Open Water Diver

Memberships & Affiliations

Tampa Bay Association of Environmental Professionals (TBAEP), *Board Member*

St. Petersburg Audubon Society, *Board Member*

Florida Stormwater Association (FSA)

Stewards of Our Urban Lakes (SoUL)

Florida Native Plant Society (FNPS)

Multifaceted ecologist with ~10 years of experience specializing in wetlands and wildlife ecology. Extensive experience in wetland monitoring and compliance, wetland mitigation design and management, wetland delineations and permitting, and listed species surveys, permitting, and relocation. ISA Certified Arborist and aspiring Professional Wetland Scientist with a deep passion for wetlands, restoration, and nature-based solutions.

Pale Blue Dot Consulting, LLC.

Principal Consultant, Tampa, FL — *May 2024 - present*

- Manage projects covering jurisdictional determinations and permitting, listed species surveys and permitting, wetland monitoring, tree surveys and permitting, stormwater pollution prevention plan (SWPPP) design and monitoring, and permit compliance.

Monarch Ecology Group, LLC

Ecologist, Sarasota, FL — *April 2024 - September 2024*

- Performed jurisdictional wetland determinations, listed species surveys, gopher tortoise surveys and relocations, submerged aquatic vegetation (SAV/seagrass) surveys, technical report writing, land use mapping, permitting, and agency reviews.

Flatwoods Consulting Group Inc. (now Verdantas)

Ecologist, Tampa, FL — *2019 - 2024*

- Managed projects covering jurisdictional wetland determinations, environmental resource permitting, listed species surveys and permitting, and wetland mitigation, monitoring, and design.
- Trained staff on FDEP and USACE wetland delineation methodologies; vegetation monitoring methodologies; listed species identification, behavior, and survey methodologies; data collection, report preparation, and QAQC.
- ESA consultation, environmental permitting, monitoring, and compliance in mining, agriculture, energy production and transmission, residential and commercial developments, and public sector projects.
- Assisted with fresh & marine water quality sampling, meter testing, pollution source tracking, and rapid biological assessments.

Bio-Tech Consulting Inc.

Field Biologist & Land Management Supervisor, Tampa, FL — *2015 - 2019*

- Land Management Supervisor: managed crews conducting physical and chemical vegetation removal projects, ranging from 0.1–100+ acres on wetlands, lakes/ponds, streams, and upland habitats; trained land management crew on plant identification and herbicide SOPs; assisted in contract bids/proposals.
- Field Biologist: jurisdictional determinations, ERP permitting assistance, listed species surveys and relocations, ecological assessments, and wetland monitoring.

Wetland & Wildlife Surveying, Permitting, & Monitoring Expertise

Expert wetland delineator, training staff on federal and state jurisdictional determination methodologies, Uniform Mitigation Assessment Method (UMAM), Wetland Rapid Assessment Procedure (WRAP), Environmental Resource Permitting (ERP), and EPA Clean Water Act Section 404 permitting. FWC Authorized Gopher Tortoise Agent and Burrowing Owl Agent with extensive experience surveying, permitting, and relocating listed species and FWS consultation. Projects include Substations, Transmission Lines, Solar Farms, and other Energy-Related Projects; Surface Mining Projects; Residential and Commercial Developments; and single-family homeowners.

Managed projects designing and monitoring small-scale mitigation wetlands associated with permitted wetland impacts. Extensive experience supervising wetland monitoring projects on landscape-scale (50-1,000+ acres) wetland mitigation banks and surface mine reclamation wetlands, as well as gopher tortoise (GT) recipient site permitting, monitoring, and habitat conservation plans. Determine ERP, mitigation, or GT recipient site permit compliance issues and suggest remedies to maintain compliance or attain release from regulating agencies. Managed, assisted, and trained others in wetland monitoring methodologies including Southwest Florida Water Management District (SWFWMD) Wetland Assessment Procedure (WAP); Environmental Transect Monitoring (ETM) for mine-related Water Use Permit (WUP); Mitigation Bank/Mine Reclamation Monitoring; and GT recipient site habitat/vegetation monitoring. These efforts include standardized quantitative and qualitative data collection for vegetative composition and zonation, vegetation health characteristics, hydrology, soils, wildlife habitat usage, data set manipulation, statistical analyses, technical report writing, and land management plans.

Project Examples

- Horse Creek Stewardship Program (HCSP): Ecological Monitoring, Impact Assessment Studies, Annual Reporting, 2018-2023. (The Mosaic Company) Hardee and Desoto Counties. Completed July 2018 - 2024; Contract $97,000/year (annual report) and $85,000 - $120,000 (impact studies).
- Hudson Beach Pollution/Microbial Source Tracking. (Pasco County). Hudson Beach/Pasco County. Completed August 2024; Contract $260,000.
- Wetland Assessment Procedure (WAP) Monitoring. (SWFWMD & Tampa Bay Water) Hillsborough, Hernando, Pasco, Pinellas, Polk, Sumter Counties. 2020-2023. Completed May-June annually; Contract ~$100,000 per year.
- Environmental Transect Monitoring (ETM) of Preserved Non-Mined Floodplain Systems to support Consumptive Use Permits (CUP). (The Mosaic Company) Hillsborough, Polk, Manatee, Hardee, Desoto Counties. Ongoing project completed March-May annually; Contract ~$100,000 per year.
- Quantitative & Qualitative Wetland Monitoring and ERP Compliance for onsite enhancement, onsite mitigation, and offsite mitigation wetlands. (RaceTrac Petroleum; Cortland; NNP Southbend II; Avalon Park Wesley Chapel) Hillsborough, Pasco Counties.
- Quantitative & Qualitative Wetland Monitoring and (FDEP, USACE, Hillsborough County) Permit Compliance on large-scale surface mine reclamation wetlands. (The Mosaic Company) Hillsborough, Polk, Manatee, Hardee, Desoto Counties. Various ongoing projects; 1- to 5-year contracts completed July-October annually; Contracts $5,000 - $50,000 per year.
- Mitigation Bank Monitoring, Permit Compliance, and Permitting Assistance (The Mosaic Company; Rock Bend Ranch) Hardee and Desoto Counties. Status: Ongoing; Contract ~$200,000.
- Stormwater Pollution Prevention Planning (SWPPP) and compliance monitoring along transmission lines, easements, substations, and laydown yards. (Duke Energy) Throughout All of Florida. Various projects: SWPPP and erosion control plan ($1,000 - $5,000); weekly monitoring, post-storm monitoring, and post-construction monitoring ($1,500 - $10,000 per event).
- Ecological Surveys, Wetland Delineations, Threatened & Endangered Species Surveys, Avian Monitoring, and Permitting along transmission lines, easements, substations, solar farms, and laydown yards. (Duke Energy, Florida Power & Light) Throughout All of Florida. Various projects (0.5-acre–1,000+ acres; one pole–100+ poles); Contracts $1,000 – $100,000+.
- Wetland Delineations and Environmental Resource/404 Permitting; Listed Species Surveys and Permitting, Gopher Tortoise Surveys, Permitting, and Relocations: (multiple private landowners) Alachua, Charlotte, Desoto, Duval, Hillsborough, Lee, Manatee, Marion, Pasco, Pinellas, Sarasota, and Sumter County. Various projects all with <1 month turnaround times; Contracts $2,000 - $10,000.
- Gopher Tortoise Conservation, Ten or Fewer, and Temporary Exclusion Permitting: conduct transect surveys, attain appropriate FWC relocation permits, and conduct relocation activities. Projects ranging from 1-1,000+ burrows on sites including single family home-owners, 1,000-acre solar farms, substations, transmission lines, and ROW easements. (Duke Energy, Florida Power & Light (FPL), DR Horton, Pasco County Schools (through Coastal Design Consulting), and single-family homeowners) throughout Florida. Contracts ranging from $4,000–$100,000.

Pale Blue Dot Consulting

Katie Bowes, PWS

Senior Scientist

Years Experience

9 years; 3 years with firm

Expertise

Environmental Policy

Stormwater BMPs

Environmental Monitoring, Assessment, and QAQC

Wetland and Aquatic Biogeochemistry

Environmental Compliance

Ecosystem Restoration

Education

MS, Oceanography and Coastal Sciences, spec. Wetland and Aquatic Biogeochemistry, LSU, 2018

BS, Natural Resources Ecology and Management, spec. Conservation Biology, LSU, 2016

Licenses/Certifications

Professional Wetland Scientist, #3478

FDEP Municipal Stormwater Inspector, #48344

FDEP Erosion and Sediment Control Inspector, #42424

Professional Affiliations

Society of Wetland Scientists

Florida Stormwater Association

DRUMMOND CARPENTER

Professional Profile

Ms. Bowes has an extensive background in municipal environmental and stormwater management issues. She has nine years of direct experience in large-scale ecosystem restoration and management projects within marine, estuarine, and riverine habitats. For her master's degree, she studied the fate of pollutant loads and their interactions in marine and wetland ecosystems. While working for a local government for several years, she focused on utilizing these concepts to develop retrofit plans for aging stormwater infrastructure and to guide science-based approaches to new stormwater management and water quality treatment opportunities. Over the last several years, Ms. Bowes has supported municipalities in updating wetland protection and land preservation ordinances, supporting vital natural resource protections while planning for sustainable urban growth.

Representative Experience

Big Econlockhatchee River Monitoring Support, Orange County, FL. Principal investigator supporting Orange County in monthly and quarterly water quality sampling and flow measurements at seven locations along the Big Econlockhatchee River. Water quality samples were collected for standard wet chemistry parameters, nutrients, bacteriologic parameters, and specialty water quality tracers. Flow measurements were conducted using an acoustic doppler meter.

Big Econlockhatchee Bacterial Assessment Project, Orange County, FL. Project manager for the assessment of bacteriological impairment status along a section of the Big Econlockhatchee River and Longbranch tributary. Project effort involved monthly water quality sampling for E. Coli, nutrients, sucralose, and microbial source tracking utilizing DNA biomarkers for bovine, canine, and human *E. Coli* contamination. Data was analyzed and evaluated in accordance with FDEP impairment standards. Following 14 months of sampling, the project team evaluated and recommended structural and non-structural best management practicess to address impairments in identified hot spot areas.

National Pollutant Discharge Elimination System (NPDES) Permit Support, Orange County, FL. Managed field monitoring, sampling, laboratory analysis, and reporting efforts for four surface water quality monitoring locations to support Orange County's ongoing NPDES MS4 reporting requirements. Project also included associated permit reporting requirements and FDEP numeric nutrient criteria evaluation of monitoring activities from the previous permit year.

Lake Anderson Alum Treatment Assessment, Orange County, FL. Project team member in review of water column phosphorus and sediment inactivation study for Lake Anderson. Project effort included water quality and sediment data collection, current and historic data analysis, alum dosage calculations and treatment strategy, and a final report detailing findings and alum treatment recommendations.

Pale Blue Dot Consulting

Bud Davis, PhD, PG

Senior Geologist

Years Experience

7 years; 7 years with firm

Expertise

Stormwater Management & Water Resources

Hydrologic and Hydraulic (H&H) Modeling

Environmental Assessment and Testing

Geographic Information Systems (GIS)

Education

PhD, Geophysics, University of Texas at Austin, 2017

BS, Geology, University of Florida, 2012

Licenses/Certifications

Professional Geologist, FL #3118

Professional Geologist, TN #6146

Stormwater Erosion & Sediment Control Inspector, #44091

Professional Affiliations

American Institute of Professional Geologists (Early Career Professional Committee)

Florida Association of Professional Geologists (Leadership Committee)

Florida Stormwater Association (Member)

DRUMMOND CARPENTER

Professional Profile

Dr. Davis has expertise in surface and groundwater modeling, hydrologic system modeling, spatial analysis, GIS, and stormwater management. These efforts range from sediment transport modeling in urban stream systems, to the development of large-scale coupled groundwater and surface water models to assess groundwater recharge. Dr. Davis has field experience assessing existing municipal infrastructure and providing detailed recommendations for stormwater best management practices.

Representative Experience

Wekiva Priority Focus Area (PFA) Groundwater Monitoring and Nutrient Source Assessment, Orange County, FL. Served as project manager on multiple groundwater monitoring and water quality assessment projects within the Wekiva PFA. Directed the installation and sampling of a multi-aquifer monitoring network, collecting and analyzing data from the Surficial, Intermediate, and Upper Floridan aquifers to evaluate the impacts of septic-to-sewer conversions. Performed stable isotope forensics, sucralose tracer analysis, and statistical interpretation of nutrient data to quantify nitrate loading and confirm wastewater contributions.

Wekiva Groundwater Basin Management Action Plan Gap Analysis, Orange County, FL. Helped develop R scripts and a 3D conceptual site model to provide insight into areas of surface water infiltration and groundwater flow. Helped implement the Stable Isotope Analysis in R (SIAR) statistical model to estimate the proportion of nitrate contamination form potential pollution sources. Based on conclusions from this work, Orange County is in the process of revising fertilizer ordinances to alleviate nitrate pollution.

Mallory Swamp H&H Modeling, Lafayette County, FL. Assisted in characterizing the surface and groundwater character of the Mallory Swamp Wildlife Management Area. Developed a 3D Earth Volumetric Studios model of the subsurface geology and integrated data with results from an existing MODFLOW groundwater model. Developed a coupled ICPR4 groundwater and surface water model using topographic surveying and surface water monitoring data to simulate drainage from the Mallory Swamp area. This model is currently being used to evaluate Suwannee River Water Management District hydraulic structure adaptive management strategies.

Automated National Pollutant Discharge Elimination System (NPDES) Water Quality Analysis and Reporting, Orlando, FL. Project manager and technical lead for the development of customized Python scripts to streamline data processing and NPDES reporting. The project replaced labor-intensive manual data handling with an automated system that extracts, processes, and analyzes water quality data. This automation reduced manual reporting time by approximately 80%, minimized errors associated with manual data entry, and enhanced the City's ability to detect water quality trends in real time.

Pale Blue Dot Consulting

Nate Holt, PE

Senior Engineer

Years Experience

12 years; 5 years with firm

Expertise

Hydrodynamic, Vadose Zone, and Groundwater Modeling

Surface Water/Groundwater Interactions

Hydrogeology

Environmental Assessment

Geospatial Mapping and GIS Analysis

Education

MS, Agricultural & Biological Engineering, University of Florida, 2014

BS, Agricultural & Biological Engineering, University of Florida, 2012

Licenses/Certifications

Professional Engineer, FL #87082

Professional Engineer, IA #25045

Professional Affiliations

American Society of Agricultural and Biological Engineers

National Groundwater Association

DRUMMOND CARPENTER

Professional Profile

Mr. Holt's experience includes environmental studies involving pollutant characterization and assessment; modeling and analysis (surface water, vadose zone, and groundwater); water supply, surface-groundwater interactions; and geospatial mapping and analysis. He evaluates pollutant leaching and transport through soils, in groundwater, and within surface water systems through measurement and modeling. Mr. Holt develops surface water, porewater, and groundwater monitoring systems to collect environmental data. He develops, calibrates, and uses flow and pollutant transport numerical models, including hydrodynamic surface water models, vadose zone soil-water models, and groundwater models.

Representative Experience

Lake Weston Best Management Practice (BMP) Feasibility Analysis, Orlando, FL. Project engineer and modeler for the evaluation of BMPs designed to reduce nutrient loads to Lake Weston. Conducted hydrodynamic and water quality modeling of the canal with RMA2/RMA4 software to evaluate nutrient reduction and potential recirculation issues associated with installing a nutrient reduction filter off a canal that feeds Lake Weston.

Groundwater Vulnerability Assessment, Orange County, FL. Evaluated the impact of pollution from septic systems on the quality of vulnerable water resources. Conducted groundwater vulnerability mapping using geospatial modeling (Arc-SDM) in GIS and water quality modeling and analysis using vadose zone and groundwater transport modeling (NSILT, HYDRUS, and MODFLOW). Identified vulnerable regions to develop priority focus areas, guide ordinance updates, and help determine areas to target for future septic-to-sewer conversions and upgrades.

Fate and Transport Modeling of Nitrogen, Total Maximum Daily Load/Basin Management Action Plan Support, Orange County, FL. Project manager and numerical modeler to simulate the fate and transport of a nitrogen application on the land surface, through the unsaturated zone to the groundwater, and transport to downstream waterbodies (e.g., springs). Simulated uptake, decay, and drainage dynamics of nitrogen fertilizer applied to lawns and subsequent transport to downstream waterbodies using numerical modeling software packages, HYDRUS and MODFLOW. Unsaturated zone modeling was conducted with HYDRUS-1D, which was utilized to simulate the uptake, decay, and drainage of fertilizer nitrogen applied to turfgrass. Nitrogen leaching simulated by HYDRUS was then applied to a groundwater flow and transport model developed to be representative of groundwater conditions in the vicinity of Wekiva Springs. The groundwater flow and transport model was developed through refinement of the ECFTX regional groundwater model. Telescopic mesh refinement and boundary condition adjustments were made to better represent local groundwater conditions in the vicinity of Wekiva Springs. The unsaturated and groundwater flow and transport modeling was used to guide updates to Orange County's fertilizer ordinance.

Pale Blue Dot Consulting

Emily Hartdegen, PWS

Senior Staff Scientist

Years Experience

9 years; ≤1 year with firm

Expertise

Environmental Permitting
Environmental Assessments
Wetlands
Water Quality

Education

PSM, Environmental Science, Oregon State University, 2024

BS, Natural Resources Ecology and Management, Louisiana State University, 2017

Licenses/Certifications

Professional Wetland Scientist, #3927

Certified Quality Process Analyst #4354

Municipal Stormwater Inspector, #50275

SUAS Remote Pilot License

Professional Affiliations

Florida Native Plant Society, *current President of Martin County Chapter*

Florida Stormwater Association

Society of Wetland Scientists

DRUMMOND CARPENTER

Professional Profile

Mrs. Hartdegen has an extensive background in water quality management, environmental assessments, environmental permitting and compliance, aquatic ecology research, and wetland science. She has nine years of experience in environmental science and five years of project management experience. Mrs. Hartdegen focused her master's studies on the function and management of stormwater treatment areas. Her diverse experience in research, environmental consulting, project management, and quality assurance allows her to be adept at managing large-scale and intricate projects.

Representative Experience

Big Econlockhatchee Bacterial Assessment, Orange County, FL. Provided project support and served as the QAQC lead on a study to identify potential sources of E. coli bacteria entering the upstream portion of the Econlockhatchee River. This project utilized the FDEP bacteria toolkit to establish thresholds for E. Coli, identified locations and species of origin of E. Coli, analyzed current and historical data for hot spots and impairment trends. Responsible for data QAQC, drafting an analysis and implementation plan, and developing recommendations for E. Coli source control.

Port Crescent State Park Sampling, Port Austin, MI. Project manager responsible for coordinating water quality sampling at Port Crescent State Park that included two groundwater wells and one surface sampling station. Facilitated the water quality sampling, provided QAQC of the lab results, and was responsible for client communication.

Lake Okeechobee Basin Management Action Plan (BMAP) Evaluation, Orange County, FL. Provided project support to evaluate the 2025 update to the Lake Okeechobee BMAP. The BMAP was evaluated to identify Orange County's role and requirements and identify TN and TP loading within the County's basins. Additionally, comments and questions on the BMAP were provided to the Florida Department of Environmental Protection (FDEP) on the County's behalf. Work is ongoing to address the implications of the updated BMAP for the County.

Lake Mary Jane Lead Impaired Lake Assessment, Orange County, FL. Providing project support and is the QAQC lead for a study to identify the extents of lead impacts in sediment and the water column within Lake Mary Jane, evaluate potential lead sources, and evaluate lead mitigation options. Sampling is complete and data analysis and reporting are underway.

Lake Conway Aquatic Plant and Nutrient Reduction Pilot Project, Orange County, FL. Providing project support, including permitting coordination, on a study to evaluate the impact of mechanical harvesting of pondweed within Lake Conway. This project seeks to describe the cost-effectiveness and potential benefits of nutrient reduction through periodic biomass harvesting. Project planning and permitting coordination is underway.

Pale Blue Dot Consulting

Callie Hathorn, WPIT

Senior Staff Scientist

Years Experience

4 years; 1.5 year with firm

Expertise

Coastal Resilience
Environmental Permitting
Environmental Assessment
Wetlands
Water Quality

Education

Master's Certification in GIS, University of West Florida, 2024

BS, Environmental Science and Environmental Management, University of West Florida, 2023

Licenses/Certifications

Wetland Professional in Training
sUAS Remote Pilot License

Professional Affiliations

Society of Wetland Scientists
International Aroid Society

DRUMMOND CARPENTER

Professional Profile

Ms. Hathorn's career began with the Florida Department of Environmental Protection (FDEP), where she led coastal resilience initiatives, including living shoreline projects and habitat restoration within coastal marine and estuarine environments. This foundation in coastal ecology and environmental policy laid the groundwork for her transition into municipal environmental consulting. At Drummond Carpenter, Ms. Hathorn contributes to an array of projects, collaborating with agencies such as Florida Fish and Wildlife Conservation Commission (FWC), FDEP, and numerous municipal governments in Florida. Her work encompasses water quality, wetlands, and regulatory compliance. Her commitment to sustainable practices and regulatory excellence drives her to deliver impactful solutions that enhance Florida's natural resources.

Representative Experience

Big Econlockhatchee Bacterial Assessment, Orange County, FL. Assisted in the comprehensive investigation of E.Coli contamination in the Econlockhatchee River. Extensive geospatial data collection, water quality trend analysis, and review of state guidance documents led to the selection of eight monitoring sites for monthly surface water monitoring and microbial source tracking using DNA biomarkers. Project efforts also include an Analysis and Implementation Plan, that will inform strategies for load reduction, success criteria for future management actions, and development of structural and non-structural best management practices.

Lake Hart Lead (Pb) Assessment, Orange County, FL. As field lead and boat captain, completed a BioBase collection of bathymetry data for Lake Hart, an 1,881-acre waterbody. Collected 78 manual muck depth and water depth samples to assess sediment conditions and verify water depths across the lake. The project aimed to assess the extent of lead contamination in sediment and water, evaluate potential sources of lead, and identify mitigation options. Survey data provided key insights for environmental analysis, supporting decisions on lead mitigation and lake management efforts.

Lake Conway Aquatic Plant and Nutrient Reduction Pilot, Orange County, FL. As a key contributor, researched impacts of pondweed density and nutrient uptake following mechanical harvesting of pondweed. Evaluated the effectiveness of mechanical harvesting to reduce nutrient levels and improve water quality in Lake Conway. Drafted the Sampling and Analysis Plan and Bycatch Monitoring Plan to establish standardized protocols and facilitate regulatory compliance. The project involved conducting biomass surveys, identifying a 10-acre plot for pondweed harvesting, and collaborating with FWC for bycatch monitoring and post-harvest vegetation assessment. Results from this study will inform decisions on the long-term management of pondweed within the lake system.

State of Florida
Department of State

I certify from the records of this office that PALE BLUE DOT CONSULTING LLC is a limited liability company organized under the laws of the State of Florida, filed on March 14, 2024.

The document number of this limited liability company is L24000129057.

I further certify that said limited liability company has paid all fees due this office through December 31, 2024 and that its status is active.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Sixteenth day of January, 2025

Secretary of State

Tracking Number: 0335257774CU

To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

State of Florida

Minority Business Certification

Pale Blue Dot Consulting, LLC

Is certified under the provisions of
287 and 295.187, Florida Statutes, for a period from:

01/08/2025 to 01/08/2027

Pedro Allende
Florida Department of Management Services

FLORIDA DEPARTMENT OF MANAGEMENT SERVICES
SUPPLIER DEVELOPMENT

Office of Supplier Development
4050 Esplanade Way, Suite 380
Tallahassee, Florida 32399
850-487-0915
www.dms.myflorida.com/osd

State of Florida

Veteran Business Certification

Drummond Carpenter, PLLC

Is certified under the provisions of
287 and 295.187, Florida Statutes, for a period from:

11/02/2023 to 11/02/2025

J. Todd Inman
Florida Department of Management Services

FLORIDA DEPARTMENT OF MANAGEMENT SERVICES
SUPPLIER DIVERSITY

Office of Supplier Diversity
4050 Esplanade Way, Suite 380
Tallahassee, FL 32399
850-487-0915
www.dms.myflorida.com/osd

UNIVERSITY OF FLORIDA

TREEO CENTER

Center for Training, Research and Education for Environmental Occupations

Eesa Ali

attended

FDEP SOP Sampling Training for Groundwater, Surface Water and Wastewater

March 20, 2007

and is awarded this

Certificate of Attendance

Date Issued: **03/20/2007**
CEU: **0.75**
FBPE PDHs (EXP00074): **7.5**
FDEP OCP DW/WW CEUs: **0.75** Intermediate: **4502**
Solid Waste I II III/C&D: **7.0**

William T. Engel, Jr. Ph.D
Director

UNIVERSITY OF FLORIDA

TREEO CENTER

Center for Training, Research and Education for Environmental Occupations

Eesa Ali

attended

Introduction to Backflow Prevention

June 10, 2004
and is awarded this

Certificate of Attendance

Date issued: 6/10/04
Operators Certification Program
Course Number: 4781

CEUs Awarded
0.7

William T. Engel, Jr., Ph.D.
Director

University of Florida TREEO Center • 3900 SW 63rd Boulevard • Gainesville, FL 32608-3800 • www.treeo.ufl.edu

Florida Department of Environmental Protection

Eesa Ali

Has successfully completed the Watershed Monitoring Sampler Training Workshop.

June 15 - 16, 2004

Shannon Gerardi,
Quality Assurance Officer

Certificate of Participation

Presented to

Clean Hands

Eesa Ali

USEPA Office of Water

Clean Sampling Techniques

Hands-On Training

March, 2005

Tallahassee, Florida

Dirty Hands

Prudential

presents the 2012 DAVIS PRODUCTIVITY AWARDS

Florida TaxWatch

Award of Distinction

IN SINCERE APPRECIATION AND RECOGNITION TO

Mr. Eesa Ali

Surface Water Assessment and Monitoring Program
Department of Environmental Protection

FOR YOUR INNOVATION, DEDICATION AND COMMITMENT TO EXCELLENCE.
YOUR WORK ENHANCES PRODUCTIVITY WITHIN STATE GOVERNMENT
AND THE LIVES OF FLORIDA'S CITIZENS.

JENNIFER CARROLL LT. GOVERNOR, STATE OF FLORIDA CHAIRMAN, DPA FOUNDATION	DOMINIC M. CALABRO PRESIDENT & CHIEF EXECUTIVE OFFICER FLORIDA TAXWATCH	MARSHALL CRISER, III CHAIRMAN FLORIDA TAXWATCH

THE PRUDENTIAL - DAVIS PRODUCTIVITY AWARDS PROGRAM IS SPONSORED BY FLORIDA TAXWATCH, THE FLORIDA COUNCIL OF 100 AND THE STATE OF FLORIDA.

THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Biologist Training

Certificate of Completion

Awarded to

Eesa Ali

October 28-29, 2008
Tallahassee, FL

David Whiting, Program Administrator
Bureau of Biology

Jennifer Paris, Compliance Coordinator
Wastewater C&E Section

DEPARTMENT OF ENVIRONMENTAL PROTECTION
FLORIDA

Department of
Environmental Protection

Southeast District Office
400 North Congress Avenue, Suite 200
West Palm Beach, Florida 33401

May 27, 2005

Congratulations on successfully completing the Florida Stormwater, Erosion, and Sedimentation Control Inspector Training Program. I greatly appreciate your participation in and successful completion of this course. I hope that it has helped you to better understand Florida's stormwater problems and the importance of proper design, construction, and maintenance of erosion and sediment controls during construction, in order to assure the proper long-term operation and maintenance of stormwater systems after construciton is completed.

Attached you will find your numbered certificate and wallet card. Please let me know if there are any errors in the certificate or card, or in the grading of your exam. If I can be of further assistance, please do not hesitate to contact me at 561/681-6689 or via email: marleina.overton@dep.state.fl.us

Eesa Gafoor-Ali
FDEP - NE District Office
7825 Baymeadows Way, Suite B200
Jacksonville, FL 32256

Thank you,
Marleina Overton

DEPARTMENT OF
ENVIRONMENTAL PROTECTION
STORMWATER, EROSION, AND SEDIMENTATION CONTROL
INSPECTOR TRAINING PROGRAM

Eesa Gafoor-Ali

May 6, 2005 **Inspector #9301**

QUALIFIED STORMWATER MANAGEMENT INSPECTOR

Department of Environmental Protection

This Certificate is awarded to:

Eesa Ali

For successful completion of:

Wetland Delineation Training

April 13 2006
Date

Jay Franke
Instructor

U.S. ENVIRONMENTAL PROTECTION AGENCY

This certifies that

Eesa Ali

has completed

Hazardous Waste Operations and Emergency Response

(40 Hour OSHA Health and Safety)

Orlando, FL
September 26 - September 30, 2011

3.8 Continuing Education Units
This course meets the 29 CFR 1910.120(e)(3)(i) requirements of a minimum of 40 hours of off-site safety training for hazardous waste site workers (HAZWOPER).

Presented by the

ENVIRONMENTAL RESPONSE TRAINING PROGRAM

Timothy J. Gapp
Course Director

Bruce Potoka
U.S. EPA Project Officer

R06-05

This certifies that

EESA GAFOOR-ALI

Has completed the

Hazardous Material Incidents Response Operations (165.5)

Training Course
3.8 Continuing Education Units
Jacksonville, Florida
June 4–8, 2007

Presented by the

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

In cooperation with the

U.S. ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL RESPONSE TRAINING PROGRAM

This course meets the 29 CFR 1910.120(e)(3)(i) requirements of a minimum of 40 hours of off-site safety training for hazardous waste site workers.

Course Director
Florida Department of Environmental Protection

R07-04

Emergency Management Institute

FEMA

This Certificate of Achievement is to acknowledge that

EESA GAFOOR-ALI

has reaffirmed a dedication to serve in times of crisis through continued professional development and completion of the independent study course:

IS-00100.a
Introduction to the Incident Command System,
ICS-100

Issued this 3rd Day of May, 2010

AUTHORIZED IACET PROVIDER

0.3 IACET CEU

Cortez Lawrence, PhD
Superintendent
Emergency Management Institute

Emergency Management Institute

FEMA

This Certificate of Achievement is to acknowledge that

EESA GAFOOR-ALI

has reaffirmed a dedication to serve in times of crisis through continued professional development and completion of the independent study course:

IS-00800.b
National Response Framework, An Introduction

Issued this 27th Day of May, 2010

0.3 IACET CEU

Cortez Lawrence, PhD
Superintendent
Emergency Management Institute

Emergency Management Institute

FEMA

This Certificate of Achievement is to acknowledge that

EESA GAFOOR-ALI

has reaffirmed a dedication to serve in times of crisis through continued professional development and completion of the independent study course:

IS-00700.a
National Incident Management System (NIMS)
An Introduction

Issued this 27th Day of May, 2010

0.3 IACET CEU

Cortez Lawrence, PhD
Superintendent
Emergency Management Institute

Emergency Management Institute

FEMA

This Certificate of Achievement is to acknowledge that

EESA GAFOOR-ALI

has reaffirmed a dedication to serve in times of crisis through continued professional development and completion of the independent study course:

IS-00200.a
ICS for Single Resources and
Initial Action Incidents, ICS-200

Issued this 27th Day of May, 2010

AUTHORIZED IACET PROVIDER

0.3 IACET CEU

Cortez Lawrence, PhD
Superintendent
Emergency Management Institute

CERTIFICATE OF COMPLETION

Eesa Ali

has completed the UF/IFAS Extension course

Living Shoreline for Marine Contractors

on this date

April 18, 2023

Armando Ubeda - Florida Sea Grant

Tom Ries - Ecosphere Restoration Inst.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAW ENFORCEMENT
CERTIFICATE OF TRAINING

September 7th, 2005

The participant named hereon has successfully completed the following training:

American Safety & Health Institute
Basic First Aid Course

8 Hours

Eesa Ali

Thomas S. Tramel, III
Director
Division of Law Enforcement

Thomas S. Tramel

William Walls, Chief
Office of Public Education & Training
Division of Law Enforcement

Wil Walls

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAW ENFORCEMENT
CERTIFICATE OF TRAINING

September 6th, 2005

The participant named hereon has successfully completed the following training:

American Safety & Health Institute
CPR / AED for the Community & Workplace

7.5 Hours

Eesa Ali

Thomas S. Tramel, III
Director
Division of Law Enforcement

Thomas S. Tramel III

William Walls, Chief
Office of Public Education & Training
Division of Law Enforcement

William Walls

Graduate Certificate

University of Florida

The College of Agricultural and Life Sciences

Ryan Christopher Countess

Has Successfully Completed the Prescribed Course of Study for the Certificate in

Ecological Restoration

This seventeenth day of December, 2024.

J. Scott Angle
J. Scott Angle
Provost

University of Florida
1853

R. Elaine Turner
R. Elaine Turner
Dean

The International Society of Arboriculture

Hereby Announces That

Ryan Christopher Countess

Has Earned the Credential

ISA Certified Arborist ®

By successfully meeting ISA Certified Arborist certification requirements through demonstrated attainment of relevant competencies as supported by the ISA Credentialing Council

Caitlyn Pollihan
CEO & Executive Director

10 January 2025	30 June 2028	FL-10233A
Issue Date	Expiration Date	Certification Number

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17024
PERSONNEL CERTIFICATION BODY
#0847
ISA Certified Arborist

UF | TREEO Center
UNIVERSITY of FLORIDA

Center for Training, Research and Education for Environmental Occupations

Certifies that

Ryan Countess

attended

FDEP SOPs for Water and Groundwater Sampling & Meter Testing

October 3-4, 2023

and is awarded this

Certificate of Completion

Date Issued: **10/04/2023**
TREEO FDEP OCP #: **04251023 CEUs 1.2 DW WW DS**
FBPE PDHs Provider #0004021 Course #0009070:12 CEHs

Andrew Campbell, Director

University of Florida TREEO Center · 3900 SW 63 Blvd Gainesville FL 32608-3800 · 352.392.9570 · train@treeo.ufl.edu · www.treeo.ufl.edu

Department of
Environmental Protection

2600 Blair Stone Road, M.S. 3565
Tallahassee, Florida 32399-2400

July 23, 2019

Congratulations on successfully completing the Florida Stormwater Erosion and Sedimentation Control Inspector Training Program. I greatly appreciate your participation in and successful completion of this course. I hope that it has helped you to better understand Florida's stormwater problems and the importance of proper design, construction, and maintenance of erosion and sediment controls during construction, in order to assure the proper long-term operation and maintenance of stormwater systems after construction is completed.

Attached you will find your numbered certificate and wallet card. Please let me know if there are any errors in the certificate or card, or in the grading of your exam. If I can be of further assistance, please do not hesitate to contact me at 850/245-7625 or via email: Jared.Searcy@FloridaDEP.gov.

Ryan Countess
819 53rd Ave. N.
St. Petersburg, FL 33703

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTOR TRAINING PROGRAM
Ryan Countess

Class Date
July 11, 2019

Inspector Number
43634

QUALIFIED STORMWATER MANAGEMENT INSPECTOR CURRENTLY DOES NOT EXPIRE

QUALIFIED STORMWATER MANAGEMENT INSPECTOR

The undersigned hereby acknowledges that

Ryan Countess

has successfully met all requirements necessary to be fully qualified through the Florida Department of Environmental Protection Stormwater Erosion and Sedimentation Control Inspector Training Program

July 11, 2019

Inspector Number 43634

Jared Searcy
Environmental Specialist III

Kevin Coyne
WQRP Program Administrator

Linear Vegetation Survey Online Test

New Quiz Score

Congratulations Ryan,

You passed! You got 36 questions right out of 40. Well done!

Please print this page for your records!

Plant Identification Test for Lake Vegetation Index Sampling

New Quiz Score

Congratulations Ryan , You passed! You got 36 questions right out of 40. Well done!

Please print this page for your records!

New Quiz Score

Congratulations Ryan Countess,

You passed! You got 29 questions right out of 30. Well done!

Please print this page for your records!

100%

Southeastern Botany

And

Richardson Soils and Environmental

Certify that

Ryan Countess

Has successfully completed a

16 Hour Florida Wetland Delineation Workshop Training

Issued this certificate and 1.6 CEU's on the 10th day of November 2021,

Hillsborough River State Park in Zephyrhills, Florida

Christina Uranowski, M.S., P.W.S.
Southeastern Botany

Travis Richardson, M.S., CPSS
Richardson Soils and Environmental

19th Annual Wetland Assessment Procedure Training

This certificate is awarded to

Ryan Countess

In recognition of completing a two-day Wetland Assessment Procedure training course
April 2023

Instructors:
Tammy Plazak TJ Venning Madison Frazier Francisco Faria

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT


Appendix II
Required Form
Tabs VIII - XI
Pale Blue Dot Consulting

CONSULTANT EVALUATION FORM
CHARLOTTE COUNTY, FLORIDA

RFP# 20250431, WATER QUALITY MONITORING PROGRAM – LAKEVIEW/MIDWAY AND CAPE HAZE

Evaluation Criteria	*Value*	*Assigned Value*	*Weight*	*Score*
I. TEAM PROPOSED FOR THIS PROJECT A. Background of the personnel 1. Project Manager 2. Other Key Personnel 3. Consultants	1-5		X 10	
II. PROPOSED MANAGEMENT PLAN A. Team Organization 1. Project Management Approach across Pre-, During-, and Post-Construction Monitoring Phases 2. Internal Coordination, Communication, and Quality Assurance Procedures 3. Proposed Schedule Management and Deliverables Tracking	1-5		X 15	
III. PREVIOUS EXPERIENCE OF TEAM PROPOSED FOR THIS PROJECT A. Relevant environmental or infrastructure projects. B. Groundwater monitoring studies, including site-specific studies related to nutrient loading and aquifer behavior. C. Previous septic-to-sewer programs and studies – particularly in Florida or similar regulatory environments. D. Integrated monitoring of both groundwater and surface waters to assess environmental impacts.	1-5		X 20	
IV. PROJECT CONTROL A. Schedule 1. What techniques are planned to assure that schedule will be met? 2. Who will be responsible to assure that schedule will be met? B. Cost 1. What control techniques are planned? 2. Demonstrate ability to meet project cost control. 3. Who will be responsible for cost control? C. Recent, current and projected workload.	1-5		X 10	
V. PRESENT PROPOSED DESIGN APPROACH FOR THIS PROJECT A. Describe proposed design philosophy, including how the approach addresses project goals. B. Describe the methods and tools proposed for groundwater and surface water monitoring, sampling, and source identification, and explain why they are appropriate for this project. C. Describe methods for analyzing and interpreting monitoring data to evaluate contaminants levels and trends. D. Describe your approach to stakeholder communication related to technical findings and monitoring results. E. Describe how your approach includes adaptive strategies for evolving conditions or new data insights throughout the project lifecycle. F. Identify potential challenges that may arise throughout the project and proposed strategies to address them.	1-5		X 15	

VI. PRESENT EXAMPLES OF RECENTLY ACCOMPLISHED SIMILAR PROJECTS A. Describe the projects to demonstrate. 1. Schedule control. 2. Cost control. 3. Any additional costs caused by design deficiencies, not program changes. 4. Experience designing and implementing water quality monitoring programs. 5. Experience interpreting water quality results in complex hydrological environments. 6. Success in adaptive monitoring over long project timelines. 7. Challenges encountered and solutions implemented (e.g., field logistics, coordination, communication)	1-5		X 13	
VII. DESCRIBE YOUR EXPERIENCE AND CAPABILITIES IN THE FOLLOWING AREAS. A. Cost Optimization in Program Design. B. Project Schedule and Workflow Management. C. Environmental Assessment. D. Specialized Water Quality Monitoring Experience. E. Data Modeling and Analysis for Water Quality. F. Regulatory Compliance and Integrated Water Quality. G. Stakeholder Coordination and Engagement. H. Technical Reporting and Presentations.	0-5		X 14	
VIII. VOLUME OF WORK – TOTAL OF PAYMENTS RECEIVED FROM COUNTY WITHIN THE PAST 24 MONTHS* $0 - $49,999 5 points $50,000 - $99,999 4 points $100,000 - $199,999 3 points $200,000 - $349,999 2 points $350,000 - $499,999 1 points $500,000 + 0 points *Based upon information provided on Proposal Submittal Signature Form, Magnitude of Charlotte County Projects.	0-5		X 01	
IX. LOCATION Describe the Prime and Sub-Consultants responsiveness as it relates to the firm's location to the project.	1-5		X 01	
X. LITIGATION – HAVE YOU BEEN NAMED AS A DEFENDANT OR CO-DEFENDANT IN A LAWSUIT IN THE LAST FIVE YEARS? If so, describe circumstances and outcome, including Case Number, Case Name and Court.	1-5		X 01	
XI. MINORITY BUSINESS Certified MBE, Sub-Consultants Certified MBE, and/or Non-Certified MBE.	Yes or No			
REMARKS: The value assigned in judged on a scale of 1 through 5, with 5 being the highest possible value. The two exceptions are: **VIII. Volume of Work**; and **XI. Minority Business. Category VIII. Volume of Work** has a value of 0 through 5 as indicated, and **Category XI. Minority Business –** The County will consider the firm's status as an MBE or a Certified MBE, and also the status of any sub-contractors or sub-consultants proposed to be utilized by the firm, within the evaluation process.				

END OF PART III

NAME OF FIRM Pale Blue Dot Consulting, LLC

(This form must be completed and returned)

PART IV - SUBMITTAL FORMS
PROPOSAL SUBMITTAL SIGNATURE FORM

1.	Project Team Name and Title	Years experience	City of office individual will work out of for this project	City individual's office is normally located	City of individual's residence
	Eesa Ali, PWS, Principal, Lead Designer	22	St. Petersburg	St. Petersburg	New Port Richey
	Ryan Countess, Principal/Senior Ecologist	10	St. Petersburg	St. Petersburg	St. Petersburg
	Katie Bowes, PWS - Senior Scientists	9	Maitland/Orlando	Pensacola	Pensacola
	Bud Davis, PhD, PG - Senior Geologist	7	Maitland/Orlando	Orlando	Orlando
	Nate Holt, PE - Senior Engineer	12	Maitland/Orlando	Orlando	Orlando
	Emily Hartdegen, PWS - Senior Staff Scientist	9	Maitland/Orlando	Orlando	Orlando
	Callie Hathorn, WPIT - Senior Staff Scientist	4	Maitland/Orlando	Orlando	Orlando

2.	Magnitude of Company Operations	
	A) Total professional services fees received within last 24 months:	$ 57,000
	B) Number of similar projects started within last 24 months:	None as PBDC
	C) Largest single project to date:	$ 7,500

3.	Magnitude of Charlotte County Projects	
	A) Number of current or scheduled County Projects	0 (zero)
	B) Payments received from the County over the past 24 months (based upon executed contracts with the County).	$ 0 (zero)

4.	Sub-Consultant(s) (if applicable)	Location	% of Work to be Provided	Services to be Provided
	Drummond Carpenter, PLLC	Orlando, Pensacola, Tampa	10-15%	Water Quality & Hydrodynamic Modelling
				Geospatial & Statistical Analysis
				Well Installation & Oversight

5.	Disclosure of interest or involvement: List below all private sector clients with whom you have an active pending contract and who have an interest within the areas affected by this project. Also, include any properties or interests held by your firm, or officers of your firm, within the areas affected by this project.	
	Firm	Address
	Phone #	Contact Name
	Start Date	Ending Date
	Project Name/Description	

Pale Blue Dot Consulting, LLC has no current, past, or potential contracts, properties, or interests within the areas affected by this project.

Drummond Carpenter, PLLC has no current, past, or potential contracts, properties, or interests within the areas affected by this project.

NAME OF FIRM Pale Blue Dot Consulting, LLC

(This form must be completed and returned)

6. Minority Business:	**Yes X No**
The County will consider the firm's status as an MBE or a certified MBE, and also the status of any sub-contractors or sub-consultants proposed to be utilized by the firm, within the evaluation process.	
Comments or Additional Information:	
Pale Blue Dot Consulting, LLC (Prime) is a registered MBE with the State of Forida	
Drummond Carpenter, PLLC (Subconsultant) is a registered VBE with the State of Forida	

The undersigned attests to his/her authority to submit this proposal and to bind the firm herein named to perform as per contract, if the firm is awarded the Contract by the County. The undersigned further certifies that he/she has read the Request for Proposal, Terms and Conditions, Insurance Requirements and any other documentation relating to this request and this proposal is submitted with full knowledge and understanding of the requirements and time constraints noted herein.

By signing this form, the proposer hereby declares that this proposal is made without collusion with any other person or entity submitting a proposal pursuant to this RFP.

In accordance with section 287.135, Florida Statutes, the undersigned certifies that the company is not on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and does not have business operations in Cuba or Syria (if applicable) or the Scrutinized Companies that Boycott Israel List, or is not participating in a boycott of Israel.

As Addenda are considered binding as if contained in the original specifications, it is critical that the Consultant acknowledge receipt of same. The submittal may be considered void if receipt of an addendum is not acknowledged.

Addendum No._____ Dated_____ Addendum No._____ Dated_____ Addendum No._____ Dated_____

Addendum No._____ Dated_____ Addendum No._____ Dated_____ Addendum No._____ Dated_____

Type of Organization (please check one): INDIVIDUAL (__) PARTNERSHIP ( )
CORPORATION (X) JOINT VENTURE (__)

Pale Blue Dot Consulting, LLC — Firm Name
(904) 813-1298 — Telephone

Pale Blue Dot Consulting, LLC — Fictitious or d/b/a Name
99-2067960 — Federal Employer Identification Number (FEIN)

1630 58th Avenue S APT 1 — Home Office Address

Saint Petersburg, FL 33712 — City, State, Zip
1 (Founded March 14, 2024) — Number of Years in Business

1630 58th Avenue S APT 1, Saint Petersburg, FL 33712 — Address: Office Servicing Charlotte County, other than above

_____ — Name/Title of your Charlotte County Rep.
(904) 813-1298 — Telephone

Eesa Ali, PWS — Name/Title of Individual Binding Firm (Please Print)


Signature of Individual Binding Firm

6/4/2025 — Date

eesa@pbdcs.com — Email Address

(This form must be completed & returned)

DRUG FREE WORKPLACE FORM

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that Pale Blue Dot Consulting, LLC (name of business) does:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Proposer's Signature

June 4, 2025

Date

NAME OF FIRM Pale Blue Dot Consulting, LLC

(This form must be completed and returned)

HUMAN TRAFFICKING AFFIDAVIT
for Nongovernmental Entities Pursuant To FS. §787.06

Charlotte County Contract #20250431

The undersigned on behalf of the entity listed below, (the "Nongovernmental Entity"), hereby attests under penalty of perjury as follows:

1. I am over the age of 18 and I have personal knowledge of the matters set forth except as otherwise set forth herein.

2. I am an officer or representative of the Nongovernmental Entity and authorized to provide this affidavit on the Company's behalf.

3. Nongovernmental Entity does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.

4. This declaration is made pursuant to Section 92.525, Florida Statutes. I understand that making a false statement in this declaration may subject me to criminal penalties.

Under penalties of perjury, I declare that I have read the foregoing Human Trafficking Affidavit and that the facts stated in it are true.

Further Affiant sayeth naught.

Signature

Eesa Ali
Printed Name

Principal/CEO
Title

Pale Blue Dot Consulting, LLC
Nongovernmental Entity

6/4/2025
Date

END OF PART IV

NAME OF FIRM Pale Blue Dot Consulting, LLC
(This form must be completed and returned)