February 22, 2018

Mr. Frank Sakuma, Chief Operating Officer
Indian River Lagoon Council
1235 Main Street
Sebastian, Florida 32958

RE: IRLC Request for Proposal: Category 1: Restoration
Jones' Pier Conservation Area - Indian River County, Florida

Dear Mr. Sakuma :

On behalf of Indian River County, I am pleased to submit the attached proposal in response to theabove referenced RFP. The Jones' Pier Conservation Area not only represents a unique piece of the history of settlement in Indian River County, but also is situated in a location that provides opportunities for abundant public access. The site is part of the Greenway/Blueway that the County is developing utilizing our properties located along Jungle Trail and the Indian River Lagoon.

Our proposal for the restoration and creation of wetlands on the Jones' Pier site will provide many ecological functions and educational opportunities. Our goal in conservation is to maximize the many benefits provided by natural resources on our properties, while at the same time encouraging the public to enjoy and appreciate the rewards of successful land management and conservation.

The Indian River County Budget and corresponding Five-year Capital Improvements Schedule was adopted by the Board of County Commissioners on December 1, 2015. Improvements for the Jones' Pier Conservation Area were included in this Schedule. The County has committed to a 72% match of the proposed budget for the wetland restoration proposal detailed in our attached submittal.

We appreciate your consideration of our proposal, and look forward to working with your organization on this project. Please do not hesitate to contact either myself, or our project Manager Beth Powell, if you require clarification of any of the materials we have provided.

Sincerely,

Michael C. Zito
Assistant County Administrator

OFFICE OF ASSISTANT COUNTY ADMINISTRATOR
INDIAN RIVER COUNTY * 1801 27TH STREET * VERO BEACH, FL 32960
OFFICE: 772-226-1410 - FAX 772-589-6119

INDIAN RIVER LAGOON NATIONAL ESTUARY PROGRAM
FY 2018-2019 WORK PLAN – RFP RESPONSE
WETLAND RESTORATION AT JONES PIER CONSERVATION AREA
EXECUTIVE SUMMARY

Indian River County (County) is requesting $61,000.00 from the IRLNEP to supplement funding for the construction of estuarine wetlands and native uplands at the Jones' Pier Conservation Area (JPCA). The County proposes a 72.0% match (totaling $159,155.00 in cash and in-kind services) of the total project cost of $220,155.00.

The Site is located approximately two miles south of the intersection of CR 510 and Jungle Trail, at 27°44'5.67"N & 80°23'36.22"W, in Indian River County, Florida (see attached site maps).

Historic agricultural uses of the JPCA have eliminated the majority of the natural areas. This project will restore and create approximately 2.8 acres of open water and herbaceous wetlands in areas that currently are dominated by Brazilian pepper and other exotic species. The wetlands are proposed to mimic tidal conditions within the Lagoon using a solar pump and a water control structure, and will provide high marsh habitat and water quality treatment that will benefit the Lagoon. Although not a permitted output for the project, it is estimated that the wetlands annually will remove approximately 269 lbs. of nitrogen and 124 lbs. of phosphorus from the Lagoon (based on conservative estimates).

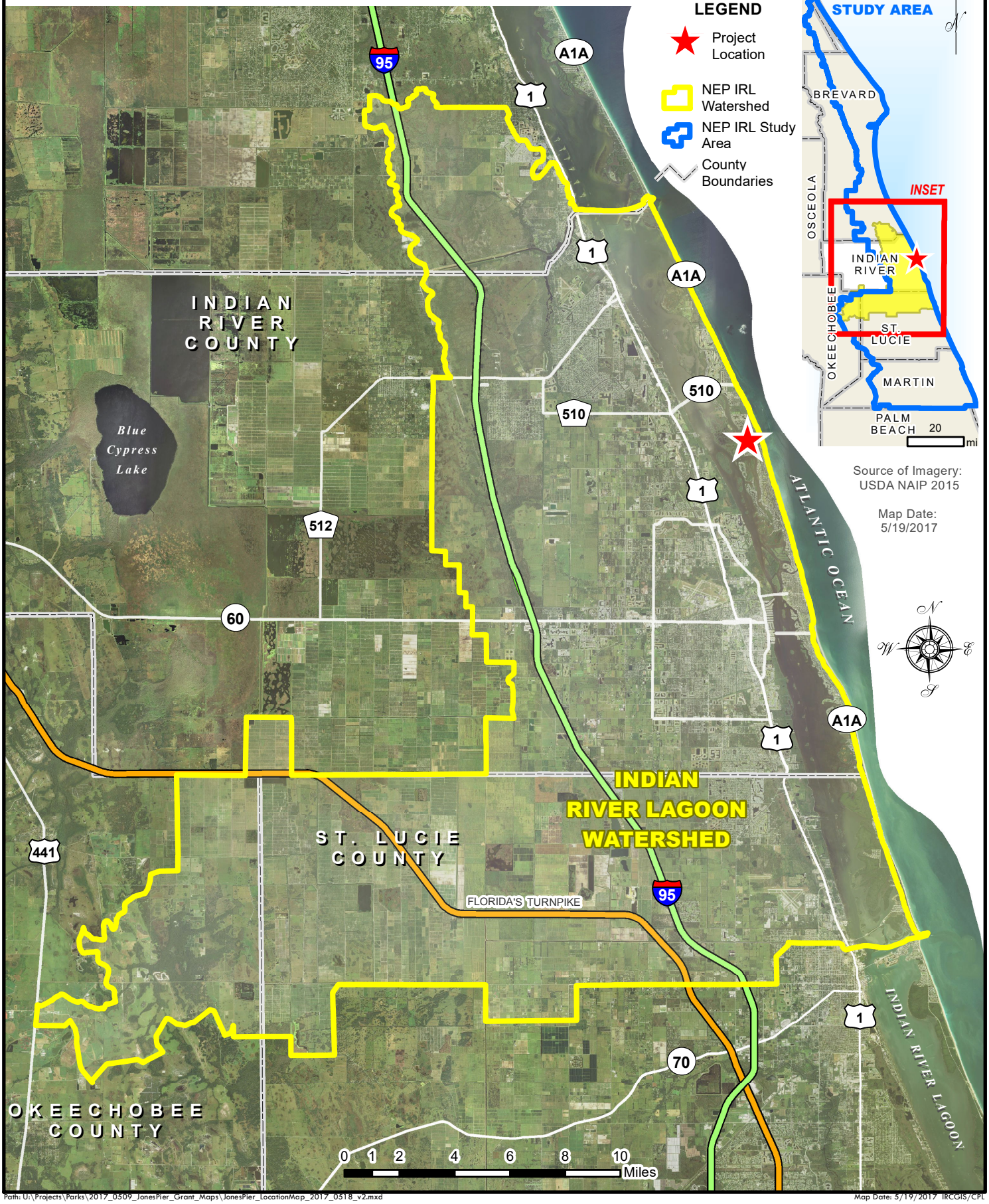
As detailed in the attached project description materials, this project addresses many CCMP Action Plans including: FSD-13 (upgrade stormwater drainage); IFF-2 ((management plans for exotic species); PIE-2 (public education for the IRL); FSD-11 (public education about stormwater & freshwater discharge); BD-2 (effectively manage lands to protect & restore biological diversity); CC-3 (provide residents with climate change educational materials); IFF-4 (engage residents to aid in control of exotic species); PIE-1 (implement & expand educational programs); MB-5 (improving boater awareness); and PIE-4 (increase public & governmental involvement in protecting & restoring the IRL).

Deliverables for the project will be the constructed wetlands and accompanying as-builts drawings to be provided by the contractor. By producing these deliverables, the County will take the first step in restoring and managing the site to achieve the following objectives:

- Educating the public on the benefits of conserving natural resources specific to the IRL;
- Providing herbaceous estuarine habitat which is rare in the County's portion of the IRL;
- Removing nutrients from the Lagoon and providing pre-treatment of site runoff;
- Educating the general public, local schools, and other organizations on the goals and challenges involved in improving conditions in the IRL;
- Eradiating exotic species on-site;
- Educating the public on the benefits of native plantings;
- Educating the public on environmentally sensitive practices they can implement at home;
- Providing a refuge for protected wildlife; and,
- Providing the public with passive recreation opportunities.

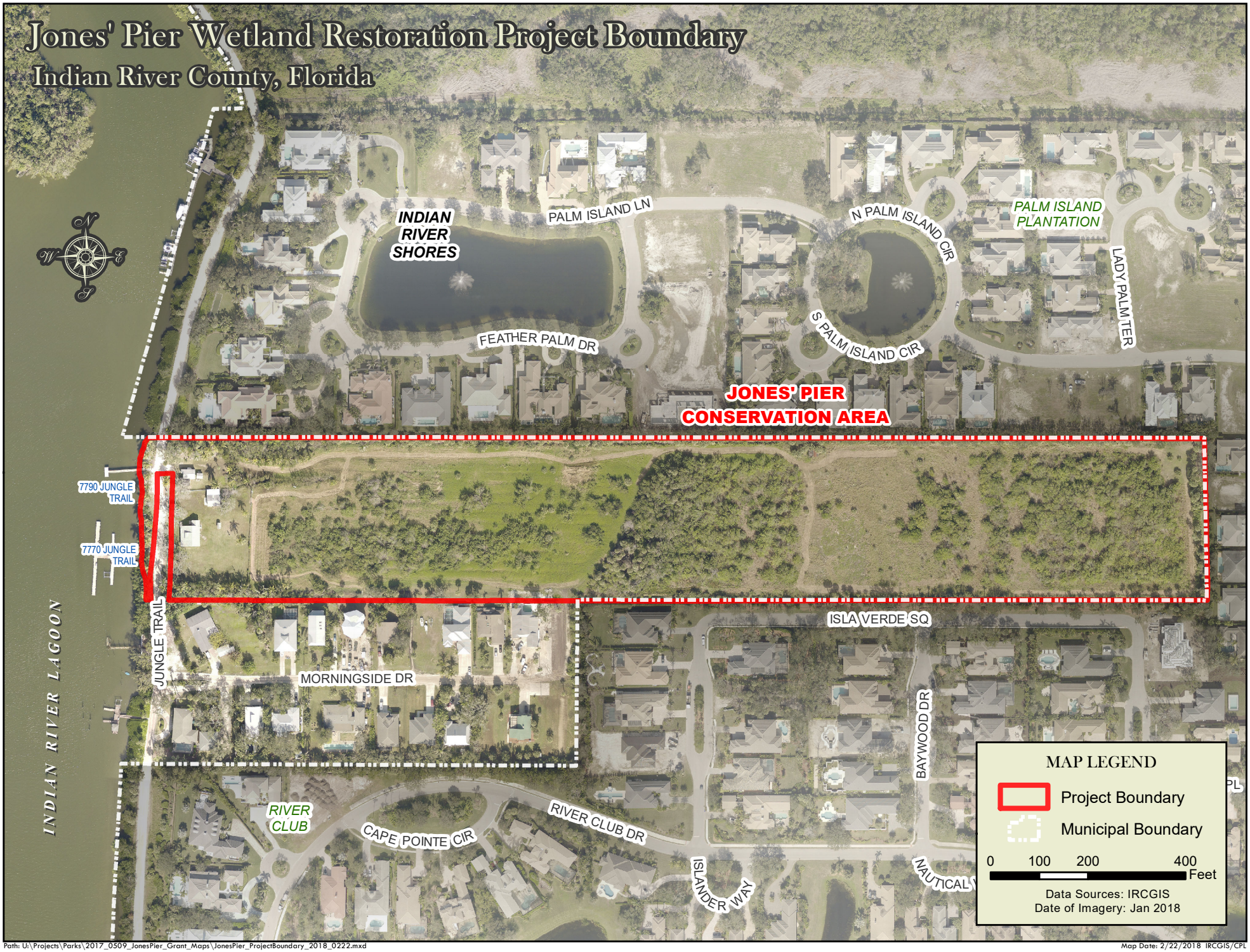
Jones' Pier Wetland Restoration Location Map

Indian River County, Florida



Source of Imagery: USDA NAIP 2015

Map Date: 5/19/2017



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SECTION 1 – TITLE PAGE

1. **Project Name:** ***Wetland Restoration at Jones' Pier Conservation Area***

2. **Table of IRL CCMP Action Plans Implemented by Jones Pier Wetland Restoration Project**

CCMP Action Plan	NEP Priority	Project Related Description
Top Three CCMP Action Plans Directly Addressed by the Proposal		
BD-2	High	The County will manage environmentally sensitive lands to restore integrity and productivity and promote biological diversity. The proposal will create diverse wildlife habitat in an area devoid of ecological functions. Treatment of runoff will contribute to reducing pollutants entering the Lagoon, which in turn enhances productivity of beneficial species.
FSD-13	High	The converted agricultural lands on site currently do not treat surface water runoff to the Lagoon. This project proposes to intercept and treat runoff prior to discharge into the Lagoon.
IFF-2	High	The County will remove the exotic species that dominate the site and replace them with a diverse assemblage of native plants. The County will implement a management plan that includes perpetual control of exotic species.
Secondary CCMP Action Plans Addressed by the Proposal		
FSD-11	High	The County will collaborate with the SJRWMD to have planned events and educational materials concerning the impacts of stormwater & freshwater discharges to the Lagoon.
CC-3	Medium	Daily public use, school events and educational signage will provide information to local governments & residents about the impacts of climate change and actions they can take to reduce impacts.
IFF-4	High	The site is dominated by exotic species. This project will engage residents in management and eradication of exotic species and encourage native plantings through educational programs & interpretive exhibits.
PIE-1	High	This project will implement & expand public involvement and education programs via daily public use of walking trails, community gardens, wetland boardwalks, and by periodic school outdoor classroom programs.
PIE-4	High	The management plan for the site will include organizing volunteer activities designed to protect and restore resources of the Lagoon such as clean-up events, participation in exotic species eradication events, and events to re-vegetate shoreline areas with native species.
MB-5	High	The County will work with the FWC and Keep Indian River County Beautiful to provide educational materials and conduct programs to promote environmental awareness on actions to reduce boater impacts to the Lagoon.
PIE-2	High	The County will develop educational exhibits and programming to inform stakeholders about the value of IRL resources.

3. **Applicant:** Beth Powell, Indian River County Conservation Lands Manager
5500 77th Street
Vero Beach, Florida 32967
Phone: (772) 226-1873; Fax: (772) 589-6119; Email: bpowell@ircgov.com

SECTION 2 – PROJECT SPECIFICS

A. Project Outputs

Mangroves are the most dominant estuarine community along the Indian River County portion of the Lagoon. This project proposes to create herbaceous estuarine wetlands which are a rapidly diminishing resource within Indian River County. Much of the high marsh habitat has been replaced by groves and other development, or impounded for mosquito control. In addition to restored wetlands, the plan includes creating native uplands that will provide additional habitat as well as aid in circulating flow through the site. Once completed, the wetlands will benefit the Lagoon by: filtering pollutants from untreated runoff and Lagoon waters; attenuating surface water flow and controlling discharges; facilitating groundwater recharge; and providing habitat for a variety of fish, wildlife and plants. This project will restore and create approximately 2.8 acres of open water and herbaceous wetlands in areas that are dominated by Brazilian pepper and other exotic species. The plan includes re-routing exiting drainage ditches and using Lagoon waters as a source for base flow through the wetlands. Circulation through the wetlands is anticipated to annually remove approximately 269 lbs. of nitrogen and 124 lbs. of phosphorus from the Lagoon (based on conservative estimates). Because this property is within an existing Conservation Area managed by the County, the wetland areas will be monitored and maintained to maximize successful establishment and long-term viability. The County plans to have the herbaceous wetlands established within 6-12 months of completion of the construction. Phase II of the project will include the restoration of the hammock area to the east of the herbaceous wetlands, and is anticipated to be permitted and constructed within the next 12-24 months.

B. Technical Merit/Justification

The project is located at 27°44'5.67"N & 80°23'36.22"W along Jungle Trail, which is a much-used corridor for walking, jogging, biking, and fishing in Indian River County. The location of this project along Jungle Trail ensures that this effort will be highly visible in the community, affording the County with the ability to maximize educational opportunities and volunteerism. JPCA was acquired with the assistance of Florida Communities Trust (FCT) and has an active management plan in place for the site. The original management plan called for restoration of a maritime hammock with walking trails. The focus of site management has been adapted to include an expanded set of goals, which now include providing benefits to the Lagoon and increased public use of the site. Changing site conditions and future climate change issues have eliminated the potential for successful establishment of a maritime hammock, therefore the County has adjusted the planned restoration of the site to target communities that will provide diverse habitat, and will adapt to the changing environment.

Water quality and habitat within the Indian River Lagoon has been affected greatly by surrounding land uses. The creation and restoration of 2.8 acres of high marsh and native uplands in proximity to the Lagoon will provide a unique opportunity for potential use by a wide array of wildlife species. While this site is relatively small in size, the combination of wetland restoration, circulation of Lagoon waters through the site, pre-treatment of site runoff, and opportunities for the public to become educated and engaged in the on-going efforts to improve the integrity and sustainability of the Lagoon supports the goals of the County and the IRLNEP. Should the grant agreement between the IRL Council and the County be executed, the project will be constructed within the timeline proposed.

C. Benefit(s) to the IRL

Any benefits that this site once afforded the Lagoon have been removed by the conversion of lands to agriculture. The County plans to restore many of the resource benefits that the site provided to the Lagoon via the creation and restoration of herbaceous wetlands. These wetlands will provide many ecological and public benefits including: creation of potential habitat not common to the area; the removal of exotic species; circulating Lagoon waters through the site to provide water quality enhancement; re-grading altered areas of the site to improve connectivity between natural areas; re-directing runoff through the wetlands to aid in improving discharges to the Lagoon; re-vegetating with native upland species; perpetual site maintenance & monitoring; and extensive public educational opportunities. These benefits will be clearly documented in monitoring data that is proposed to be collected as part of the project. The re-establishment of wetlands on the site will provide other resource benefits such as attenuation of runoff, improved aquifer recharge capabilities, water conservation (via incorporation of a plan for re-circulating surface waters to irrigate planned gardens and native planting nursery/pathways), increased biological productivity, and long-tern sustainability to address potential climate change and maximize biodiversity.

D. Partners & Local Commitment

The JPCA was acquired through funding by the FCT and has an active management plan in place for the site. The County is in the final stages of developing a master plan for the site. The works detailed in this grant application are to be a key component of the overall utilization of the site by the public. The County has completed data collection for the topography and existing features of the site, and has developed a conceptual design for the wetlands. Geotechnical data collection to support the final design and construction of the wetland restoration areas is underway. Final design and receipt of required permits is anticipated to be completed by September 2018. The schedule for the project has been outlined to include procurement of bids for construction by late October 2018, and initiation of construction by early November 2018.

The County has enlisted the help of local organizations for various aspects of the project: (1) the St John's River Water Management District (SJRWMD) has indicated that they will provide input to maximize the treatment of stormwater associated with the project, as well as assistance with design of educational displays outlining water quality benefits to the Lagoon; Harbor Branch has indicated that they would like to include information on their marine mammal program; Keep Indian River Beautiful (KIRB) would like to provide educational materials on responsible disposal of materials and recycling efforts; the IRC Historical Society is willing to fund design and production of exhibits describing the working waterfront; the IRC Mosquito Control District will assist with management strategies to minimize production of mosquito larvae; the Environmental Learning Center (ELC) has indicated that they will participate in programming events; and the UF Institute of Food and Agricultural Sciences (IFAS) has stated that they would like to participate in the public outreach related to sustainability and resource conservation.

E. Project Readiness

The County is underway on the plans and permitting for wetland restoration on the site. The table below outlines the anticipated schedule & timing for project milestones. A detailed timeline is included in the Draft Statement of Work.

Task	Source	Projected Start	Projected End
Finalize Design & Permiting	Staff/Contractor	04/30/2018	09/03/2018
Develop of Agreement Between IRC & NEP	NEP/IRC	N/A	10/01/2018
Procurement of Contractor	Staff	08/01/2018	10/30/2018
Mobilization & Construction	Staff/Contractor	11/05/2018	06/28/2019
Preparation & Submittal of Final Report	IRC Staff	06/17/2019	08/02/2019

Construction of this project requires issuance of permits from the SJRWMD and the U.S. Army Corps of Engineers (USACE). Based on pre-application meetings with both agencies, the project will qualify for a General Permit (GP) from the SJRWMD and a Nationwide Permit from the USACE. Any Indian River County permits will be processed in-house.

F. Project Monitoring/Evaluation and Maintenance Plans

As mentioned previously, the Jones' Pier Conservation Area is a managed tract that the County is obligated to enhance and preserve in perpetuity through an agreement with the FCT. As with other conservation areas in the County, this site will be monitored and maintained to maximize the ecological resources on site, including wetlands, native uplands, and targeted wildlife habitat. The County has staff qualified and available to collect water quality data, hydroperiod data, vegetative monitoring data, wildlife survey data, and other ecological assessment requirements.

As part of this project, County staff will develop a monitoring plan for the site that will be used to document compliance with required permits, and will be the baseline for all future monitoring efforts. The monitoring plan will have specific criteria for data collection and reporting timelines; it is the County's intent to collect data throughout construction, and monthly for the first six month's post-construction. Thereafter, monitoring will be planned based on seasonality and site conditions, and will be based on achieving the overall environmental goals for the project. County staff are experienced to detect trends (both positive and negative) that occur typically in ecological-based land management. This experience will allow the County to implement an adaptive management plan that includes activities targeted at maximizing the environmental benefits.

G. Project Sustainability

The County has been maintaining and monitoring lands along the Lagoon for over twenty years. During that time, it has become apparent that there have been shifts in vegetative cover attributable to adjacent land uses, as well as weather cycles and concurrent changes in hydroperiod. The design of this project has taken into account these observations, and has been engineered to adapt to changing conditions while at the same time maintaining a diverse ecological community. The flexibility of varying the hydroperiod on site by installation of a water control structure will allow staff to manipulate water levels to address management issues such as extreme weather events, control of invasive species, maximizing plant diversity, and maintenance for potential nesting species. The implementation of the perpetual monitoring and maintenance activities outlined in an adaptive management plan will ensure that sustainability is achieved to the greatest extent feasible.

H. Citizen/Volunteer Engagement and Outreach Components

The Indian River County Conservation Lands Program (CLP) manages 26 conservation areas totaling over 2,300 acres in the County. We rely on volunteer assistance for many areas of management, including control of invasive exotic species, gopher tortoise monitoring and relocation, Florida scrub-jay monitoring, listed plant census and monitoring, and public education programming. We routinely conduct public outreach events at schools and within the community promoting conservation and outlining the challenges involved in our work. We intend for this site to be a unique opportunity to engage the public in environmental awareness at every level: from the passers-by walking and biking along Jungle Trail; to active community gardens promoting the benefits of water conservation, alternatives to fertilizer & pesticide use, and use of native plantings; through walking trails & educational displays outlining every aspect of wetland conservation, protection of Lagoon resources, and conservation of wildlife habitat; and school events that will immerse younger generations in the unique resources of the Indian River Lagoon and surrounding environments.

The County tracks volunteer hours at each of our conservation areas. We also track the public interest in the various community events that we conduct or where we are a participant. We use this data to plan future educational and volunteer events. For this project we have enlisted the assistance of other groups (as detailed in Section D, above) to facilitate public educational and outreach opportunities. In addition, nearby homeowner's groups currently are engaged in this project. Based on our success at other conservation areas in the County, it is our plan to have an active group of trained volunteers assisting with operations and maintenance at the JPCA.

I. Experience and Past Performance

As mentioned previously, the CLP has experience in managing numerous lands in the County that have a wide variety of vegetative communities. We are very familiar with the challenges involved in habitat restoration, enhancement and preservation in wetland and upland environments. Several of our conservation areas are directly adjacent to the Indian River Lagoon, including: Captain Forster Hammock Preserve; Oslo Riverfront Conservation Area and South Oslo Riverfront Conservation Area; Harmony Oaks Preserve; Lost Tree Islands; Prange Island; Oyster Bar Marsh; Round Island South; and the Indian River Lagoon Greenway. The County has dedicated resources to successfully restore uplands and wetlands on these sites, as well as within the 517-acre North Sebastian Conservation Area (where numerous listed wading birds have been documented using wetlands on-site for nesting and foraging). As an additional reference, the creation and enhancement of wetlands on Lost Tree Island (in an area completely overgrown with Australian pine and Brazilian pepper) was successfully completed as a cooperative effort between the County and a private landowner. The design of the created and enhanced wetlands was completed by Wendy Swindell, who now is part of the County's Conservation Lands Program.

The County has applied for funding from the State Department of Historical Resources (DHR) for the restoration of the historic fruit stand on site. Preliminary feedback from the DHR is that the project has been funded, although confirmation will not be available until July 2018. This funding will not affect the implementation of the wetland restoration project, but if funded will serve as a key focal point for visitors. Work on the fruit stand would occur independent of wetland restoration efforts.

J. Special IRLNEP Priorities – TMDLs; Climate Change; Under - Represented Communities

As part of the educational exhibits and events planned for the site, the County intends to include materials describing how the site has been planned to address potential climate change issues. This information will describe how plant community selection, target elevations, and the overall layout of the site, were designed and engineered to consider sea level rise, broader fluctuations to expected seasonal temperatures, and possible increases in extreme weather events (storms, droughts, etc.). Although not specifically addressing TMDL goals, the project does contain water quality enhancement through treatment of runoff and Lagoon waters.

SECTION 3 – PROJECT FUNDING

A. Partnership and Cost-Sharing

Source(s) of matching funds: The County's 5-Year Capital Improvements Program Schedule has allocated funds for access improvements to conservation areas that will include the proposed project.

Documentation of in-kind match: The County will track in-kind services via a project-specific spreadsheet to be updated weekly reflecting tasks completed and staff time utilized to complete each task. The County proposes to use in-house services for the following components of the project:

- Collection of all monitoring data for the project.
- Coordination with the contractor during construction.
- Preparation of reports for the IRL Council to document the progress and completion of the project.

Information below summarizes budget data projected for design of the restoration project:

$ 61,000.00 Requested Grant Funds $ 142,455.00 Match Funds
$ 16,700.00 Value of In-Kind Match
Match as a percentage of Total Grant Cost = 72%

B. Project Budget: The table below presents the proposed budget for the project. The proposal is flexible to include lesser funding.

Task	Description	IRL NEP Funding	IRC Cash Contribution	IRC In-Kind Services[1]
1	Project Construction	$61,000.00	$139,455.00	$3,200.00
2	Preparation of Interim & Final Reports	$0.00	$0.00	$3,500.00
3	Baseline Data Collection & Report	$0.00	$0.00	$2,500.00
4	Design of Educational Exhibits	$0.00	$0.00	$3,000.00
5	Construction of Educational Exhibits	$0.00	$3,000.00	$4,500.00
	Summary Cost	**$61,000.00**	**$142,455.00**	**$16,700.00**
	Project Total Cost			**$220,155.00**

[1] - The County has funded $37,150.00 towards the completion of the Master Plan & development of the Conceptual Design. Final Design & Permitting is anticipated to include approximately$25,000.00 of contractor fees and in kind services, which is not included in the budget presented above.

Indian River Lagoon NEP
2018 Restoration Grant
Jones' Pier Conservation Area Wetland Restoration
Attachment A
Draft Project Statement of Work

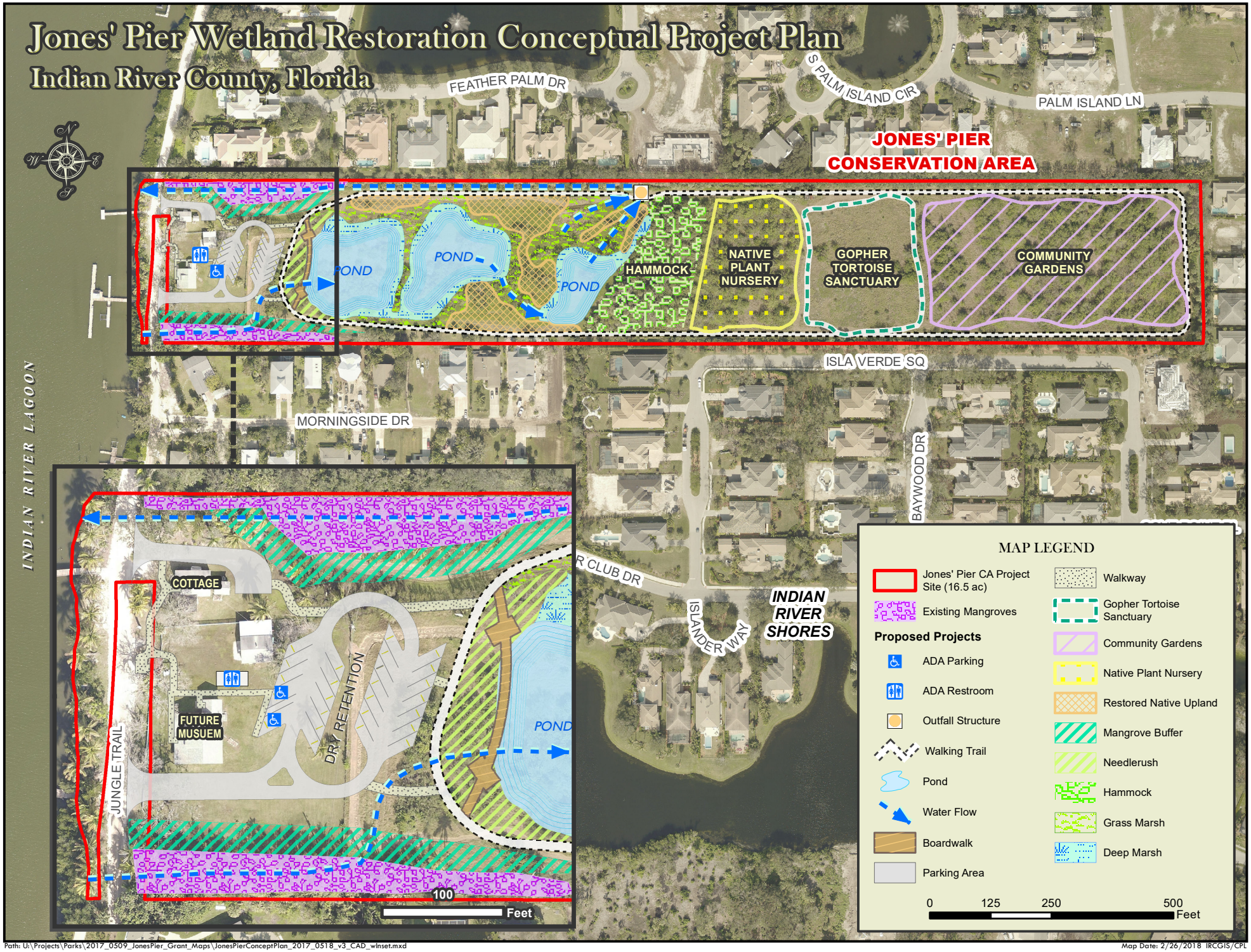
Jones' Pier Conservation Area Wetland Restoration Project
Draft Statement of Work

I. INTRODUCTION

The Jones Pier Conservation Area (JPCA) is part of the rich history of late 19th century/early 20th century settlement in Indian River County. In 1889, Seaborn Jones and his family homesteaded 160 acres on Orchid Island. Mr. Jones and his neighbors built the "Orchid-Narrows Road" which is now known as Jungle Trail (listed in 2003 on the National Register of Historic Places). The Jones family tendered crops of beans and tomatoes on the property while their citrus groves were developing. The now famous Indian River Citrus originated from the labors of these early settlers. In 1907, Mr. Jones built a dock to aid in commerce along the Indian River. The Indian River and Jones' dock was featured in the movie "There Goes the Bride," and have become picturesque reminders of "Old Florida" in numerous magazines. The 16-acre JPCA that was purchased by the County in 2011 (including the dock) is part of this original homestead.

The County acquired the site from the Jones' family with assistance from the Florida Communities Trust (FCT). As part of the purchase, the County committed to implementing a management plan for the site that restores ecological value, while at the same time utilizes the existing buildings on the property for public access and display of educational and historical exhibits. To this end, the County is in the process of finalizing a Master Plan for the site that includes elements such as: (1) design of public access facilities including buildings, restrooms, trails and parking; (2) restoration of wetlands and native uplands on-site; (3) development of an outdoor classroom for use by local schools and other organizations; (4) conservation and habitat enhancement of an existing Florida gopher tortoise population; (5) establishment of community gardens to promote environmentally sensitive & sustainable practices; (6) establishment of native planting corridors along the trails, and (7) possible development of a native plant nursery (where feasible). This conceptual plan for the site has been attached as the "Jones' Pier Wetland Restoration Conceptual Project Plan." The County proposes to phase the construction of these elements in a logical progression to maximize the ultimate use of the site.

The proposed wetland restoration will be one of the first activities to be completed on the site. Other proposed activities that are underway include repair of structures damaged from Hurricane Matthew and relocation and renovation of the historic fruit stand on Jungle Trail. The County has applied for a Department of State Historical Resources (DHR) Small Matching Funds Grant to build a replica replacing the dilapidated fruit stand. The DHR grant will also provide funding to create wayside educational exhibits to be displayed in the fruit stand. The fruit stand replica will serve as a hub for display of other project materials, including exhibits describing the planned wetland restoration and other IRL related educational materials. Based on preliminary feedback from the DHR, it appears that funding will be available for the fruit stand restoration in 2018.



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Map Date: 2/26/2018 IRCGIS/CPL

II. OBJECTIVE

Project objectives are:

- To restore and create wetlands and uplands on the site to provide ecological benefits;
- To convert the existing land use to provide additional treatment of stormwater runoff prior to discharge into the Indian River Lagoon;
- To use Lagoon waters for base flow through the created wetlands. This aspect of the project allows for creation of saltmarsh habitat which is unique to the area. The use of Lagoon water will help in maintaining salinity within an acceptable range, which will in turn establish the wetland plant community that will facilitate water quality improvements.
- To provide refuge for wildlife, including protected species;
- To design and implement the long-term management of the site to address climate change and sustainability issues. Over the past five years of observing conditions within the conservation areas along Jungle Trail, it has become obvious that the County's ability to "restore" hammock communities on the site is no longer a viable option due to shifts in water levels.
- To convert the existing land use to remove a source of exotic vegetative species;
- To provide for passive recreation for the public including walking trails and wetland viewing; and
- To provide a comprehensive public education program that emphasizes conservation and sustainability, as well as the importance of public participation (e.g. volunteerism, environmentally sensitive day-to-day practices, etc.)

III. LOCATION OF PROJECT

As shown on the Location Map included in the Executive Summary, the 16-acre site is located at 27°44'5.67"N & 80°23'36.22"W along Jungle Trail, in Indian River County. The site is on the barrier island, and is located approximately 2 miles south of the intersection of Jungle Trail and CR 510.

IV. SCOPE OF WORK

A review of historic imagery (c.1940's) does not provide much detail about past natural resources on the site (the majority of the land had been cleared by that point). It appears that there may have been several small wetland areas on the property, including the remnant hammock that remains. Grading and site drainage have removed and/or permanently altered the majority of what may have been historic wetlands.

Recent extreme weather events have resulted in significant alteration of the natural communities along Jungle Trail. In 2016, the storm surge from Hurricane Matthew and resulting persistent inundation of the un-developed lands resulted in loss of maritime hammock along the Trail. This was evident within the Captain Forster Hammock Preserve (which is approximately

1-mile north of the Jones' site). The original management plan for the Jones' site outlined plans to "restore" hammock to the site; it is apparent that hammock restoration would be a poor choice given the changing conditions along Jungle Trail. Revised site planning has changes the focus from the original plan to create a mosaic of estuarine wetlands and uplands that will be constructed to withstand anticipated extreme weather events and the long-term effects of climate change.

A. <u>Final Design</u>

As part of the process for developing the Master Plan for the site, the County has completed a preliminary design of the restoration/creation of wetlands. Plan views and cross sections depicting the proposed layout and composition of the wetlands are included as Attachment #1 to this Draft Work Plan. As shown on the plans, the County proposes to create 2.8-acres of saltmarsh with contiguous upland areas to augment habitat diversity on the site. The County is in the process of collecting geotechnical and additional topographic data required to prepare final design plans suitable for submittal of required wetland permit applications for construction. Final design considerations include:

- Assess pre-existing site features to maximize the cost/benefit ratio for establishing wetland habitat and water quality benefits;
- Design of the solar pump station to operate continuously, or to mimic high tide/low tide cycles;
- Assess design of a solar pump station that will lift plankton and small fish species into the wetlands without causing harm;
- Assess design of a discharge structure that will allow fish and plankton to escape from the wetlands into the discharge flow-way, and ultimately back into the Lagoon;
- Design of the discharge flow-way to maximize nutrient uptake on a per unit area basis;
- Utilization of the geotechnical and topographic data to refine the wetland design to maximize the diversity of proposed wetland communities.
- Develop a dewatering plan for construction to be approved as part of the permitting process.

The current schedule for the project includes submittal of wetland permits in July 2018. Pre-application meetings have been held with both the St. John's River Water Management District (WMD) and the U.S. Army Corps of Engineers (USACE), and the project has received very positive feedback. The intent is for all permits to be in place and selection of the approved Contractor prior to October 30, 2018.

B. <u>Construction</u>

The Scope of Work for the project includes the construction of the wetland and upland areas as depicted on the attached plans. This work will include: site survey, clearing, earthwork & rough grading, installation of structures, and planting. A brief summary of the proposed sequence of events is presented below.

- Following site mobilization and installation of required erosion control measures, the Contractor will clear the site to remove the Brazilian pepper and ruderal groundcover.
- Site survey will be completed to allow for rough grading of the site.
- Rough grading will be completed and soil will be moved to create the trail and other amenities, or stockpiled in other areas of the site for use in later public improvements;
- Additional survey will be completed to allow for final grading to be completed.
- Upon completion of final grading and installation of structures, as-builts of the site will be generated for review and approval.
- Once as-builts are approved, the pump can be turned on to bring in Lagoon waters prior to initiating planting.
- Planting will begin once suitable hydrology on the site has been established.

Generally, it is preferred to plant a site with a variety of vegetative species across a topographic gradient. Wetland planting is anticipated to be most successful if completed during the summer months. However, because this site is located in east Central Florida where winters are generally mild, the installation of plants for this project can be scheduled to occur following the earthwork and start-up of the wetlands. Because juvenile plants are more sensitive to elevation that mature plants, the start-up of the wetlands will include greater scrutiny of water level fluctuations to ensure that newly planted material has the greatest chance for successful establishment. Over time the plants will become well established based on hydrologic and topographic conditions, and will be more tolerant of fluctuations. In addition to water levels, the start-up of the wetlands will consider that salt marsh plants can be very sensitive to stagnant waters with elevated salinities. The site will be maintained to flush consistent with nearby natural areas.

C. Monitoring

Carefully planned monitoring plans are key to the successful establishment and long-term viability of created wetlands. Monitoring data will identify areas where re-plantings are required; provide insight into the effectiveness of water flows and levels based on species composition, substrate conditions and wildlife use; determine how elevations are affecting diversity and composition; assess water quality as needed; identify areas of erosion so that corrective measures may be instituted; and identify whether nuisance and exotic species need to be controlled. Successful monitoring will collect data not only on vegetative cover, but will also assess other wetland functions and stability of wildlife using the site.

Created saltmarsh would not be immediately expected to contain all of the vegetative and wildlife species as a natural marsh, however, with proper monitoring and maintenance the diversity and abundance of species will reflect conditions within nearby natural systems. A detailed monitoring plan for the site will be developed as part of the permitting for the project. Baseline monitoring will be conducted upon completion of construction to document site conditions. It is anticipated that long-term proposed monitoring activities will include:

Photographic Monitoring

- Establishment of photo stations to document conditions within the wetlands over time.

Vegetative Monitoring

- Establishment of transects and/or other quantitative sampling methods to document diversity and cover within the wetlands and uplands.

Hydrologic Monitoring

- Installation of staff gauges within the wetlands, as well as one gauge on the historic dock. These gauges will be constructed and surveyed so that the wetland hydroperiods can be consistent with water levels in the Lagoon. The County may also install a rain gauge on site.

Sediment Monitoring

- Inspection of the system to detect any areas of significant erosion that may cause problems in wetland operation.

Water Quality Monitoring

- As part of the monitoring of the site, data including temperature, dissolved oxygen, salinity, and ph will be collected via meter readings. Samples to determine influent and effluent levels of TSS, TN and TP may be included as part of the proposed monitoring.

Wildlife Assessment

- Saltmarsh habitat is a rare resource within Indian River County. Protected species known to utilize saltmarsh habitat include: Reddish egret (*Egretta rufescens*), Roseate spoonbill (*Platalea ajaja*), Tricolored heron (*Egretta tricolor*), Wood stork (*Mycteria americana*), Atlantic salt marsh snake (*Nerodia clarkii taeniata*), and Little blue herons (*Egretta caerulea*). In addition, a wide variety of non-listed wading birds, songbirds, raptors, small mammals, fish and aquatic invertebrates would be expected to utilize the created habitat on site.

  The proposed monitoring plan will include assessment of wildlife usage on site. This data will be evaluated as part of the operation of the wetland to ensure that foraging, roosting and nesting habitat is maximized.

D. **<u>Maintenance</u>**

As part of the permitting for the project, a maintenance plan will be developed for the site. Elements of the maintenance plan should include, at a minimum:

- Routine inspection of the pump station, discharge channel, and all structures (e.g. culverts, outfall structure) to clear debris and maintain operation.
- To the extent feasible, work in areas when the site is not inundated (e.g. low tide).
- Minimize trampling of vegetation (vary access routes to avoid creating pathways)
- Spot spray areas where nuisance and/or exotic species are identified. The plan will include minimal use of herbicide (application is proper based on target species). Additionally, the hammock area to the east of the wetland will be treated over time to reduce the potential for this area to be a seed source of Brazilian pepper.

- This plan proposes to maintain the site as an herbaceous wetland system. To this end, the plan will include installation of screens and/or filters to collect mangrove seeds and prevent them from entering the wetland. Maintenance procedures will include routine cleaning of these screens.
- In the event that extreme weather conditions occur (e.g. tropical storms, hurricanes), mangrove seeds entering the wetland via storm surge will be manually removed prior to germination.
- Fill in any areas of erosion and consider additional planting if needed to avoid future erosion.
- Coordination with other County Departments, FDEP, SJRWMD, and others, as needed, to determine if there are water quality issues in the nearby areas of the Lagoon that may require that the pump station be turned off for periods of time.
- Maximize mosquito control via encouraging establishment of resident fish population.

E. **Educational Programming**

The County will develop an extensive educational program for the site. This plan will be prepared with assistance from our various project partners (provided in the application materials). This collaborative effort will include the following:

- Educational signage focusing on water quality in the IRL, with emphasis on the benefits of wetland restoration and BMP's that the public can adopt;
- Educational signage and other exhibits describing the need for proper management of stormwater entering the IRL;
- Educational signage and exhibits describing safe boating practices with respect to wildlife conservation and resource protection;
- Monthly educational programs on-site lead by staff or other project partners – these events will include both students and the general public;
- Educational exhibits detailing the history of the Jones' site and its contribution to the IRL.

V. TASK IDENTIFICATION

Indian River County shall complete the following tasks:

1. Quarterly Progress Reports: The County will prepare and submit quarterly progress reports after the first quarter following contract execution and continuing to project completion.
2. Collection of Baseline Monitoring Data: The County will collect baseline monitoring data following the completion of construction to document site conditions following completion of construction.
3. Project Administration and Final Report: The County will complete 100% of the project and will submit a project final report. The final report will provide copies of the as-builts and the results of the baseline monitoring event.

VI. DELIVERABLES AND TIME FRAMES

It is anticipated that the work will be completed based on the following timeline:

TASK	ANTICIPATED TIMELINE	
	INITIATION	COMPLETION
Final Design and Permitting	04/30/2018	09/03/2018
Finalize State of Work and Execute Final Agreement	N/A	10/01/2018
RFP for Construction	08/01/2018	10/30/2018
Mobilization	11/05/2018	11/19/2018
Site Survey	11/19/2018	12/10/2018
Preparation & Submittal of First Quarterly Progress Report	12/14/2018	01/01/2019
Clearing, Earthwork & Installation of Structures	12/17/2018	04/15/2019
Preparation & Submittal of Second Progress Report	03/15/2019	04/01/2019
Start-Up & Develop Hydrology	04/01/2019	N/A
Preparation & Approval of As-Builts	04/15/2019	05/06/2019
Planting	05/13/2019	06/13/2019
Completion of Construction	N/A	06/28/2019
De-Mobilization & Site Clean-Up	07/01/2019	07/15/2019
Preparation of Final Report	06/17/2019	08/02/2019

VII. BUDGET

The engineer's preliminary construction cost for the project is presented below.

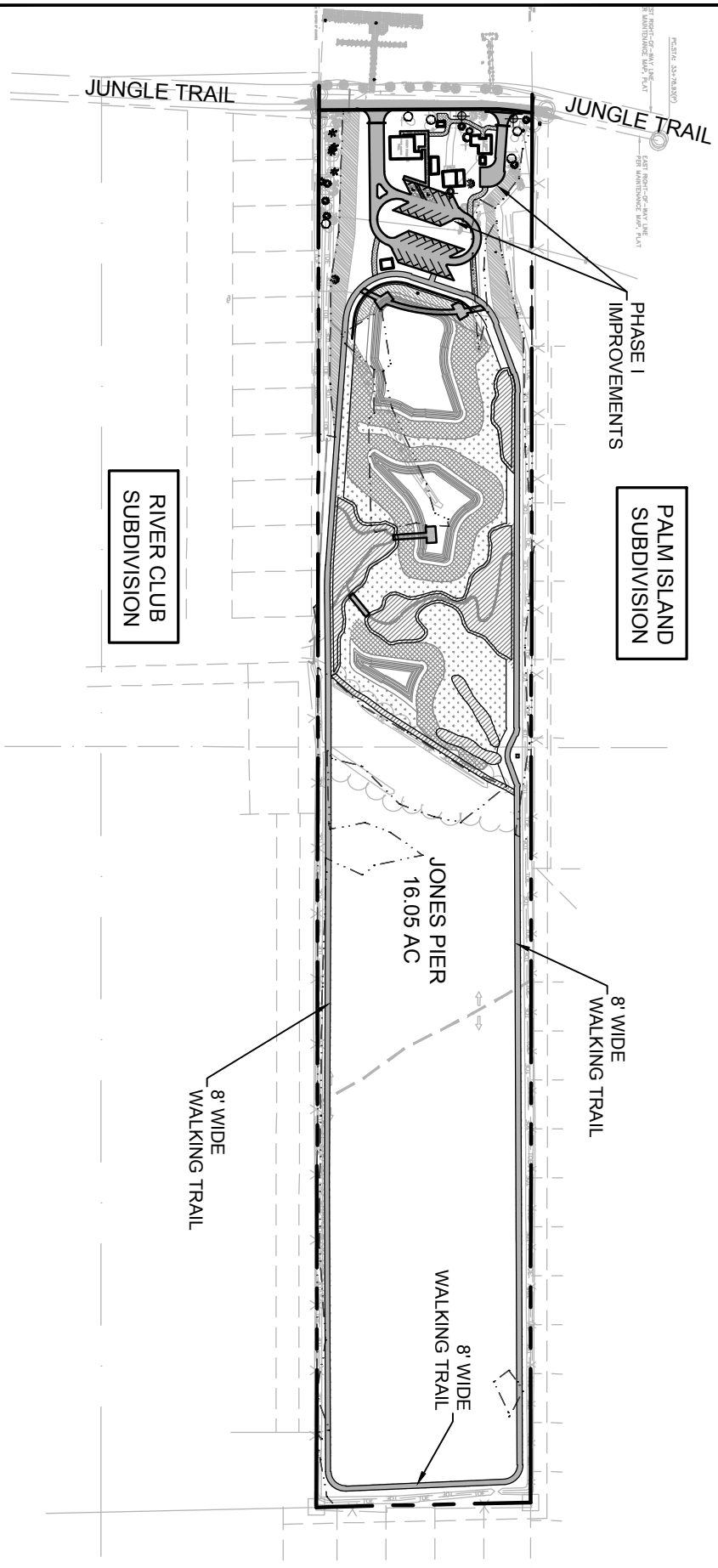
JONES' PIER WETLAND RESTORATION ESTIMATE OF CONSTRUCTION COST BASED ON CONCEPTUAL PLAN				
Item	**Quantity**	**Unit**	**Unit Price**	**Total**
Site Construction				
Mobilization	1	LS	$7,500.00	$7,500.00
Clearing (Based on Wetland Restoration area)	3.8	AC	$3,000.00	$11,400.00
Haul Clearing Debris off-site and disposal	1	LS	$3,500.00	$3,500.00
Pond Excavation (3 ponds -based on 6' depth	14,500	CY	$4.00	$58,000.00
Haul Fill on-site and stockpile (pond depth of 6')	14,500	CY	$2.00	$29,000.00
Rough Grading (Site)	3.8	AC	$2,000.00	$7,600.00
Final Grading (Pond contouring - per pond)	3	EA	$7,500.00	$22,500.00
			Subtotal	**$139,500.00**
Storm Drainage & Erosion Control				
12" ADS N-12 for pond outfall pipe	100	LF	$23.00	$2,300.00
18" ADS N-12 pond connector pipes	200	LF	$34.00	$6,800.00
Stabilized road restoration for pipe install	1	LS	$6,500.00	$6,500.00
Solar Pump house / system	1	EA	$4,000.00	$4,000.00
Control Structure	1	EA	$2,500.00	$2,500.00
Erosion Control	1	LS	$3,500.00	$3,500.00
			Subtotal	**$25,600.00**
Planting				
Procure & Install Plant Materials	1	LS	$23,355.00	$23.3550.00
			Subtotal	**$23,355.00**
Professional Services				
Survey Stakeout	1	LS	$6,000.00	$6,000.00
Engineer Coord. and meetings through Phase I Construction	1	LS	$6,000.00	$6,000.00
			Subtotal	**$12,000.00**
			TOTAL	**$200,455.00**

An overall summary of the costs included in the grant application request are included below.

Task	Description	IRL NEP Funding	IRC Cash Contribution	IRC In-Kind Services[1]
1	Project Construction	$61,000.00	$139,455.00	$3,200.00
2	Preparation of Interim & Final Reports	$0.00	$0.00	$3,500.00
3	Baseline Data Collection & Report	$0.00	$0.00	$2,500.00
4	Design of Educational Exhibits	$0.00	$0.00	$3,000.00
5	Construction of Educational Exhibits	$0.00	$3,000.00	$4,500.00
	Summary Cost	**$61,000.00**	**$142,455.00**	**$16,700.00**
	Project Total Cost			**$220,155.00**

[1] - The County has funded $37,150.00 towards the completion of the Master Plan & development of the Conceptual Design. Final Design & Permitting is anticipated to include approximately $25,000.00 of contractor fees and in kind services, which is not included in the budget presented above.

Indian River Lagoon NEP
2018 Restoration Grant
Jones' Pier Conservation Area Wetland Restoration
Attachment 1
Wetland Restoration Conceptual Plans



JONES PIER
WETLAND RESTORATION
7770 JUNGLE TRAIL, VERO BEACH

INDIAN RIVER COUNTY, FL

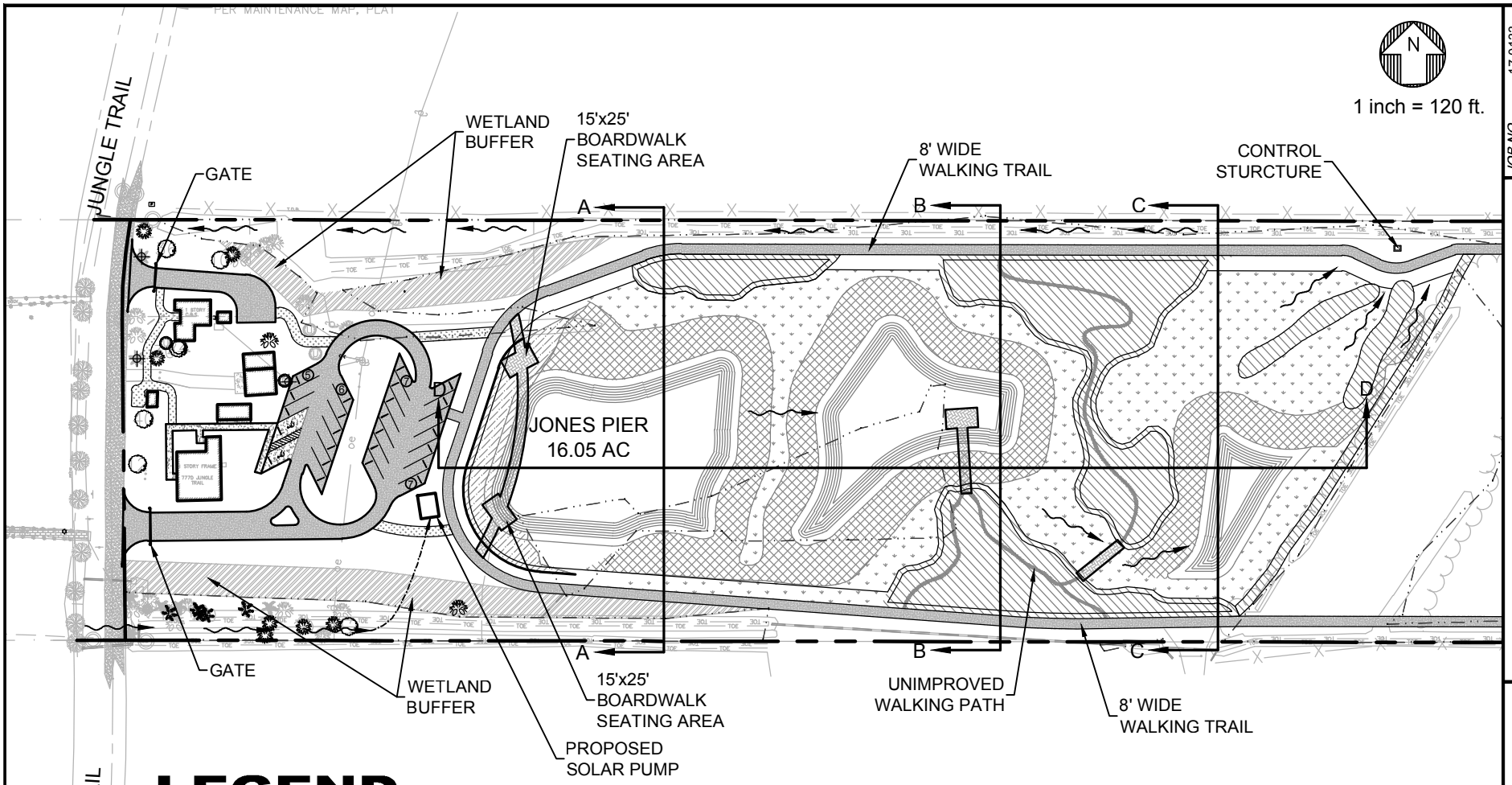
PROPOSED PLAN
EXHIBIT - 1

MBV ENGINEERING, INC.
MOIA BOWLES VILLAMIZAR & ASSOCIATES
CONSULTING ENGINEERING CA #3728

1835 - 20TH STREET
VERO BEACH, FL 32960
PH. (772) 569-0035
FX. (772) 778-3617

MELBOURNE, FL - PH (321) 253-1510
FT. PIERCE, FL - PH (772) 468-9055

JOB NO.	17-0133
DESIGNED	TH
DRAWN	RT
DATE	FEB 2018
CHECKED	TH
DATE ISSUED	FEB 2018
SCALE	AS NOTED



LEGEND

- ZONE 'A' / UPLAND RESTORATION - 0.94 AC
- ZONE 'B' / GRASS MARSH - 1.05 AC **
- ZONE 'C' / SHALLOW MARSH - 0.91 AC **
- ZONE 'D' / DEEP MARSH - 0.12 AC **
- ZONE 'E' / OPEN WATER - 0.75 AC **
- WETLAND BUFFER - 0.38 AC

**TOTAL WETLAND AREA = - 2.83 AC

PROPOSED PLANTING LIST

ZONE	AREA DESIGNATION	COMMON NAME	SCIENTIFIC NAME	# PLANTS
A	Upland Restoration	Gumbo limbo	*Bursera simaruba*	75
		Jamaica caper	*Quadrella jamaicensis*	50
		Myrsine	*Myrsine cubana*	50
		Marlberry	*Ardisia escallonioides*	55
		Wild coffee	*Psychotria nervosa*	800
		Limber caper	*Cynophalla flexuosa*	25
		False mastic	*Sideroxylon foetidissimun*	20
		Snowberry	*Chiococca alba*	100
		Simpson's stopper	*Myrcianthes fragrans*	100
		Spanish stopper	*Eugenia foetida*	75
		Saltbush (Perimeter Only)	*Baccharis halimifolia*	230
B	Grass Marsh	Saltgrass	*Distichlis spicata*	1500
		Marsh elder	*Iva frutescens*	250
		Annual glasswort	*Salicornia bigelovii*	300
		Perennial glasswort	*Salicornia ambigua*	300
		Saltmeadow cordgrass	*Spartina patens*	1600
		Sea blite	*Suaeda linearis*	300
		Seashore dropseed	*Sporobolus virginicus*	550
		Christmas-berry	*Lycium carolinianum*	50
		Sea-purslane	*Sesuvium portulacastrum*	225

ZONE	AREA DESIGNATION	COMMON NAME	SCIENTIFIC NAME	# PLANTS
C	Shallow Marsh	Needlerush	*Juncus roemerianus*	250
		Smooth cordgrass	*Spartina alterniflora*	350
		Saltgrass	*Distichlis spicata*	500
		Marsh elder	*Iva frutescens*	100
		Annual glasswort	*Salicornia bigelovii*	250
		Perennial glasswort	*Salicornia ambigua*	250
		Saltmeadow cordgrass	*Spartina patens*	300
		Sea blite	*Suaeda linearis*	150
		Seashore dropseed	*Sporobolus virginicus*	250
D	Deep Marsh	Needlerush	*Juncus roemerianus*	500
		Smooth cordgrass	*Spartina alterniflora*	225
F	Wetland Buffer	Saltmeadow cordgrass	*Spartina patens*	1250
		Sea ox-eye	*Borrichia frutescens*	400
		White indigoberry	*Randia aculeata*	20
		Christmas-berry	*Lycium carolinianum*	20

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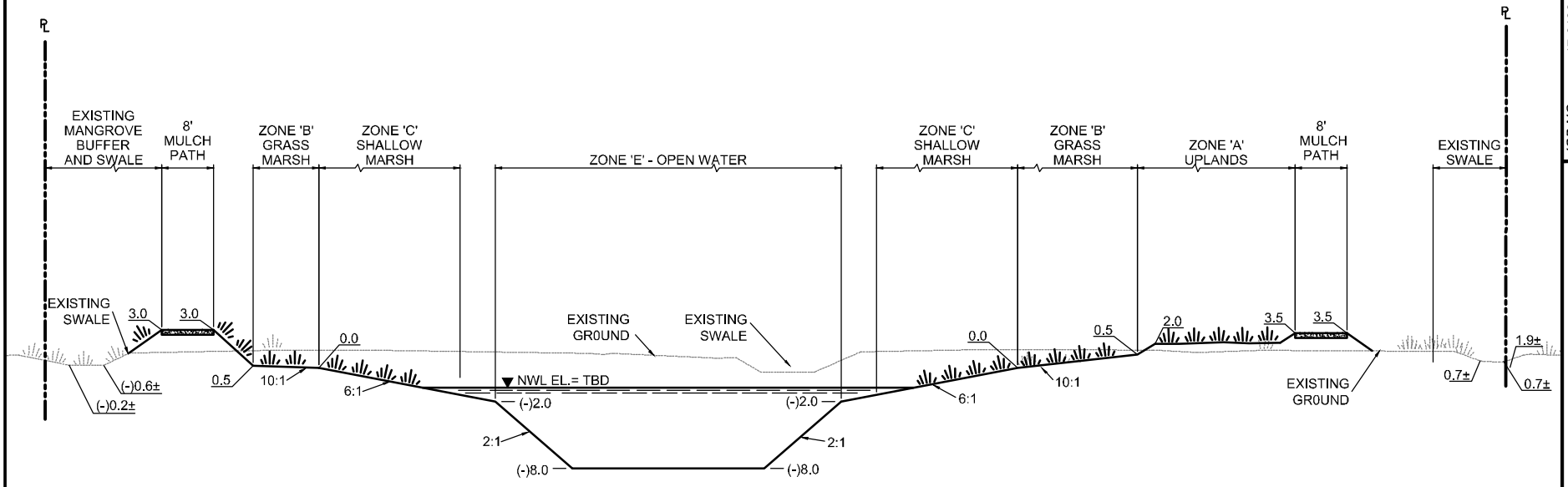
MBV ENGINEERING, INC.
MOIA BOWLES VILLAMIZAR & ASSOCIATES
CONSULTING ENGINEERING CA #3728

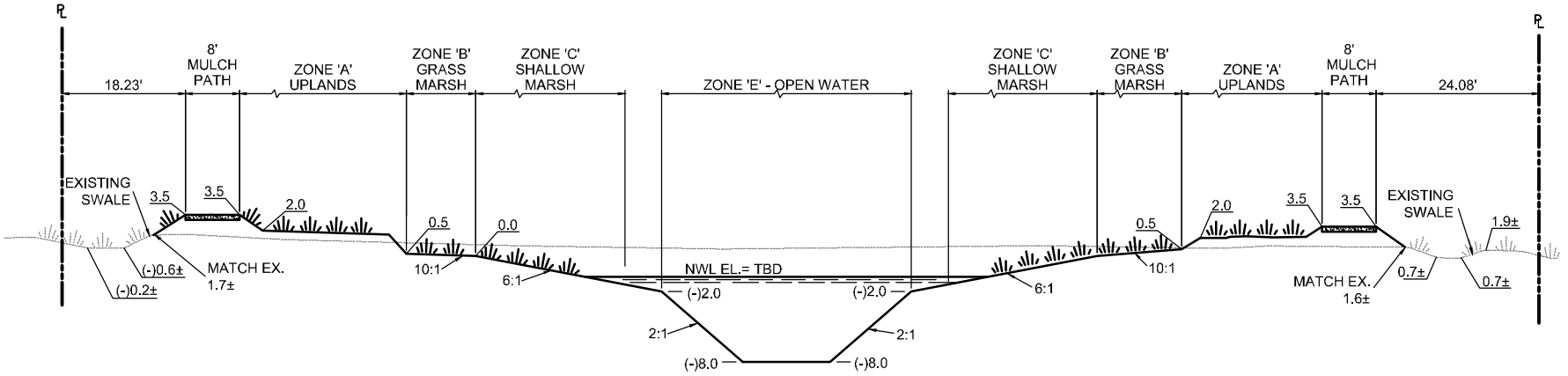
PROPOSED PLAN
EXHIBIT - 2

JONES PIER
WETLAND RESTORATION
7770 JUNGLE TRAIL, VERO BEACH
INDIAN RIVER COUNTY, FL



SECTION A-A

N.T.S.



SECTION B-B

N.T.S.

PLEASE NOT THAT ALL ELEVATIONS AND HYDROPERIOD DATA PRESENTED IS CONCEPTUAL. FINAL ENGINEERING PLANS WITH ACCOMPANYING GEOTECHNICAL DATA WILL PRESENT DETAILED DESIGN CRITERIA.

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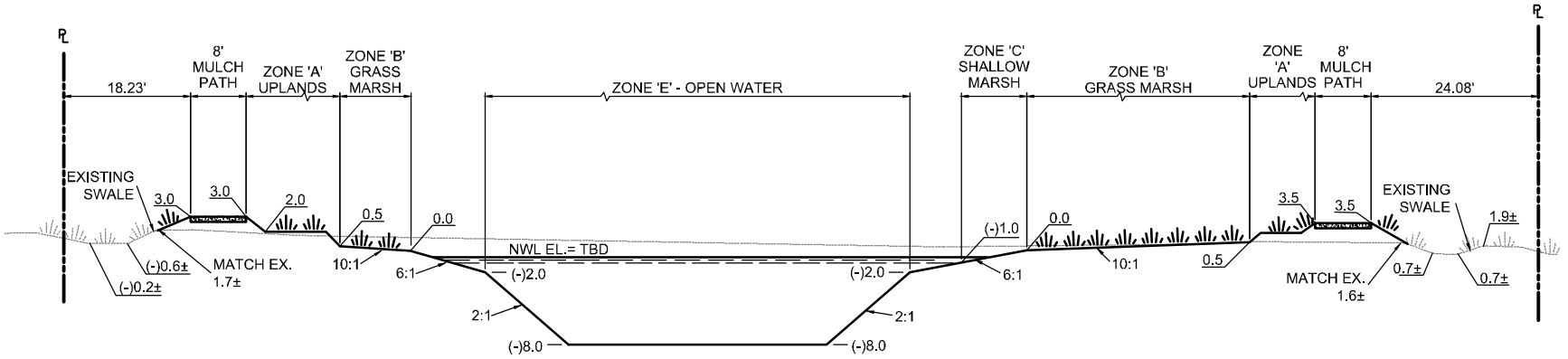
MBV ENGINEERING, INC.
MOIA BOWLES VILLAMIZAR & ASSOCIATES
CONSULTING ENGINEERING CA #3728

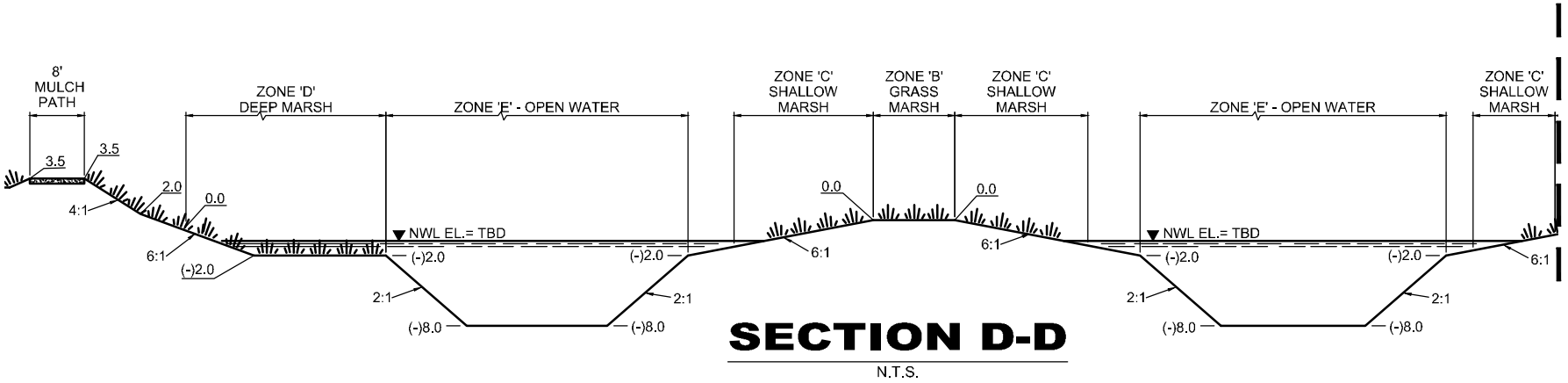
PROPOSED
CROSS SECTION
EXHIBIT - 3

JONES PIER
WETLAND RESTORATION
7770 JUNGLE TRAIL, VERO BEACH
INDIAN RIVER COUNTY, FL



SECTION C-C

N.T.S.



SECTION D-D

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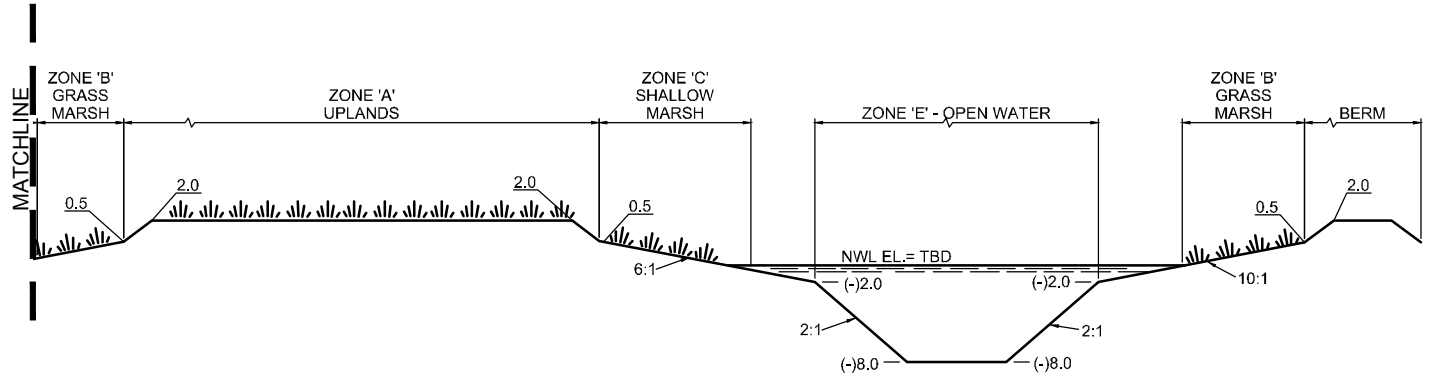

SECTION D-D

N.T.S.

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CONSULTING ENGINEERING CA #3728

MELBOURNE, FL - PH (321) 253-1510
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PROPOSED
CROSS SECTION
EXHIBIT - 4

JONES PIER
WETLAND RESTORATION
7770 JUNGLE TRAIL, VERO BEACH
INDIAN RIVER COUNTY, FL

Indian River Lagoon NEP
2018 Restoration Grant
Jones' Pier Conservation Area Wetland Restoration
Attachment B
Letters of Support

HARBOR BRANCH
FLORIDA ATLANTIC UNIVERSITY
Ocean Science for a Better World

B. Frank Sakuma, Jr.
Chief Operating Officer - IRL Council
Indian River Lagoon National Estuary Program
1235 Main Street
Sebastian, Florida 32958

February 14, 2018

Re: IRLNEP Restoration Grant Program

This letter serves to indicate my support of the Jones Pier Conservation Area restoration project. If funded, the project will afford an abundance of opportunities for the public to become engaged and educated on the continuing efforts to enhance the Indian River Lagoon. We would be happy to provide pamphlets and literature on our research in the IRL, particularly on our focus area of dolphins inhabiting the lagoon. Jones Pier provides an excellent platform to view dolphins due to the narrow confines of the waterway and in fact, has multi-generations of dolphins that frequent the area.

Mr. and Mrs. Jones were neighbors of ours on Jungle Trail and he always reveled in recounting tales of the Indian River Lagoon. It would be very nice to see his land and legacy restored since the devastating impact of Hurricane Irma. I am sure he would delight in the history of the area being preserved and new stories to be shared along his land, generously donated to the Indian River County upon his passing. I hope you will consider funding this fine project.

Regards,

Marilyn Mazzoil
Program Director, Dolphin EcoCensus

B. Frank Sakuma, Jr.
Chief Operating Officer - IRL Council
Indian River Lagoon National Estuary Program
1235 Main Street
Sebastian, Florida 32958
sakuma@irlcouncil.org

RE: IRL NEP Restoration Grant Program

February 23, 2018

Dear Frank,

This letter confirms my endorsement of Indian River County's Indian River Lagoon NEP grant application for partial funding for the construction of a wetland restoration project on the Jones' Pier Conservation Area, along Jungle Trail, Indian River County, not far from the Environmental Learning Center campus. Jungle Trail is listed on the National Register of Historic Places, and the Jones' Pier site is listed as a Contributing Structure to this designation.

The County's plan to design and permit a wetland system that will provide saltmarsh habitat for a wide variety of wildlife and plant species, utilize Lagoon water to create a meandering flow-way pond/saltmarsh system that will also serve to treat runoff from the site prior to discharge, will be unique to the area. It will also afford an abundance of opportunities for the public to engage in and be educated on the continuing efforts to enhance the Lagoon. The Environmental Learning Center sees the proposed improvements to the site as an excellent opportunity for future partnerships in educational and enrichment activities not only for the current population we serve but for the many others in the community we have not yet reached.

We see great value in the proposed project for our community, fully endorse it, and look forward to it coming to fruition.

With best wishes,

Molly Steinwald, MS
Executive Director
molly@discoverelc.org; 772-589-5050 x104

Indian River County Historical Society, Inc.

P. O. Box 2192

Vero Beach, Florida 32960

February 8, 2018

Mr. B. Frank Sakuma, Jr.
Chief Operating Officer – IRL Council
Indian River Lagoon National Estuary Program
1235 Main Street
Sebastian, Florida 32958

RE: Indian River County, Wetland Restoration Project
Jones' Pier Conservation Area

Dear Mr. Sakuma,

The Indian River County Historical Society would like to offer our full support to the grant application from Indian River County. This proposal would construct a wetland restoration project on the Jones's Pier Conservation Area located on the southern portion of the historic and scenic Jungle Trail Road.

Both Jones's Pier and Jungle Trail are valuable assets not only for Indian River County but for the entire Indian River Lagoon area. The homestead known as Jones's Pier has been located along the "Narrows" of the Indian River for well over 100 years. Jungle Trail, an old narrow dirt road, once A1A, has 7 miles of its original 14-mile alignment intact. This road is listed on the National Register of Historic Places and is considered a byway of the Indian River Lagoon National Scenic Highway. In 1995, Jungle Trail was recognized by the State of Florida as a Florida Greenway during Florida's Sesquicentennial Celebration.

Jones's Pier and Jungle Trail are unique historic and environmental treasures offering the citizens and visitors a glimpse of old Florida rarely found along the barrier island of the Indian River Lagoon. The Indian River County Historical recently released a "mini" documentary on our website (irchistorical.org) featuring this Trail, Jones Pier, and other historical places along the Lagoon.

We feel the review of Indian River County's grant application will prove to be favorable and we are looking forward to working with the County on these valuable resources.

Sincerely,

Ruth Stanbridge
Research Historian

Indian River Mosquito Control District

5655 41st Street
Vero Beach, Florida 32967
Phone: 772.5622393 Fax:772.562.9619
http://irmosquito.com irmcd@irmosquito2.org

DOUGLAS CARLSON, Director

February 1, 2018

Mr. B. Frank Sakuma, Jr.
Chief Operating Officer – IRL Council
Indian River Lagoon National Estuary Program
1235 Main Street
Sebastian, FL 32958

Re: IRLNEP Restoration Grant Program

Dear Mr. Sakuma,

Wendy Swindell at the Indian River County Parks Division has brought to my attention her office's intent to apply to the IRLNEP for a grant for the construction of a wetland restoration project on the Jones' Pier Conservation Area in Indian River County (IRC). Because our office regularly carries out mosquito control efforts on that property on a need basis, Wendy has expressed interest in our office becoming involved in the project design to try and ensure that the resulting project meets our office's mosquito control objectives. We regularly work with IRC and appreciate their offer of involvement early in the project. With this letter, we want to express our support for this worthwhile project application. If funded, we look forward to working with IRC in the design and implementation of a project that will attempt to enhance the Indian River Lagoon ecosystem without causing a significant mosquito problem in the area. Feel free to contact me if you need any additional information.

Sincerely yours,

Doug Carlson

Douglas Carlson
Director

1596 Old Dixie Hwy
Vero Beach, FL 32960

Phone: 772-226-7738
E-mail: Daisy@KeepIndianRiverBeautiful.org
Website: www.KeepIndianRiverBeautiful.org

2/20/18

B. Frank Sakuma, Jr.
Chief Operating Officer - IRL Council
Indian River Lagoon National Estuary Program
1235 Main Street
Sebastian, Florida 32958

Dear Mr. Sakuma,

I am please to write this letter of support for the County Parks & Conservation Division. Keep Indian River Beautiful has worked with the staff on several occasions to install native pollinator plants and native trees at the Captain Forster's Hammock Preserve on Jungle Trail. We have also partnered with them for other projects including park cleanups and school presentations.

The staff is very knowledgeable and considerate about working with native species that benefit each particular habitat and the residing species. They are very Professional, easy to work with and have experience working with volunteers.

I truly recommend them for this grant to benefit our community and our environment.

Sincerely,

Daisy Packer
Executive Director
Keep Indian River Beautiful