City of Stuart

AGENDA

LOCAL PLANNING AGENCY
TO BE HELD APRIL 14, 2022
AT 5:30 PM
COMMISSION CHAMBERS
121 SW FLAGLER AVE.
STUART, FLORIDA 34994

LOCAL PLANNING AGENCY

Chair - Kelly Laurine
Vice Chair - Margaret Bromfield
Board Member - Larry Massing
Board Member - Bill Mathers
Board Member - Campbell Rich
Board Member - Ryan Strom
Board Member - Jackie Vitale
Ex Officio Board Member - Kimberly Everman

ADMINISTRATIVE

Development Director, Kev Freeman
Board Secretary, Jordan Pinkston

Agenda items are available on our website at http://www.cityofstuart.us
Phone: (772) 288-5306. Fax: (772) 288-5305. E-mail: mkindel@ci.stuart.fl.us

In compliance with the Americans with Disabilities Act (ADA), anyone who needs a special accommodation to attend this meeting should contact the City's ADA coordinator at 772-288-5306 at least 48 hours in advance of the meeting, excluding Saturday and Sunday.

If a person decides to appeal any decision made by the Board with respect to any matter considered at this meeting, he will need a record of the proceeding, and that for such purpose he may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

(RC) next to an item denotes there is a City Code requirement for a Roll Call vote.
(QJ) next to an item denotes that it is a quasi-judicial matter or public hearing.

WHAT IS CIVILITY? Civility is caring about one's identity, needs and beliefs without degrading someone else's in the process. Civility is more than merely being polite. Civility requires staying "present" even with those persons with whom we have deep-rooted and perhaps strong disagreements. It is about constantly being open to hear, learn, teach and change. It seeks common ground as a beginning point for dialogue. It is patience, grace, and strength of character. Civility is practiced in our City Hall.

PUBLIC COMMENT: If a member of the public wishes to comment upon ANY subject matter, including quasi-judicial matters, please submit a Request to Speak form. These forms are available in the back of the Commission Chambers, and should be given to the City Clerk prior to introduction of the item number you would like to address.

CONSENT CALENDAR: Those matters included under the Consent Calendar are self-explanatory, non-controversial, and are not expected to require review or discussion. All items will be enacted by one motion. If discussion on an item is desired by any City Commissioner that item may be removed by a City Commissioner from the Consent Calendar and considered separately. If an item is quasi-judicial it may be removed by a Commissioner or any member of the public from the Consent Calendar and considered separately.

QUASI-JUDICIAL HEARINGS: Some of the matters on the Agenda may be "quasi-judicial" in nature. City Commissioners will disclose all ex-parte communications, and may be subject to voir dire by any interested party reg3rding those communications. All witnesses testifying will be "sworn" prior to their testimony. However, the public is permitted to comment without being sworn. Unsworn testimony will be given appropriate weight and credibility by the City Commission.

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

APPROVAL OF MINUTES

1. Approval of March 10, 2022 LPA Minutes

COMMENTS FROM THE PUBLIC (3 Minutes Max.)

COMMENTS BY BOARD MEMBERS (Non-Agenda Items)

ACTION ITEMS

2. Resolution 44-2022: The Oaks Classical Christian Academy requests approval of a Major Conditional Use Permit to increase the number of students permitted at their campus located at St. Mary's Episcopal Church. St. Mary's Episcopal Church is located at 623 SE Ocean Boulevard. (RC)

3. Ordinance 2487-2022: Request to consider a small-scale comprehensive plan amendment from Commercial to Multi-Family Residential, a rezoning from Commercial Planned Unit Development (CPUD) to Residential Planned Unit Development (RPUD), and site plan approval to allow 60 townhouse units on 4.88 acres of land for the Sailfish Cay RPUD. The subject property is located at 751 SE Central Parkway.

4. ATLANTIC POINT MARINA - FUTURE LAND USE MAP CHANGE - MIDDLE ISLAND MANAGEMENT & DEVELOPMENT, LLC

ORDINANCE: 2485-2022; AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AMENDING THE FUTURE LAND USE MAP OF THE CITY'S COMPREHENSIVE PLAN THEREBY CHANGING THE FUTURE LAND USE DESIGNATION FROM "INDUSTRIAL" TO "MARINE INDUSTRIAL" FOR MIDDLE ISLAND MANAGEMENT AND DEVELOPMENT, LLC OWNER OF PROPERTY LOCATED AT 75 NW FLAGLER AVENUE, ADJACENT TO THE ST. LUCIE RIVER, PARALLEL TO NW FLAGLER AVENUE, NORTH DIXIE HIGHWAY, AND THE FEC RAILWAY, AS DESCRIBED WITHIN THE ATTACHED LEGAL DESCRIPTION; PROVIDING AN EFFECTIVE DATE;; AND FOR OTHER PURPOSES.

STAFF UPDATE

ADJOURNMENT

CITY OF STUART, FLORIDA
AGENDA ITEM REQUEST
Local Planning Agency

Meeting Date: 4/14/2022 **Prepared by:** Jordan Pinkston

Title of Item:
Approval of March 10, 2022 LPA Minutes

Summary Explanation/Background Information on Agenda Request:
N/A.

Funding Source:
N/A.

Recommended Action:
Approve.

ATTACHMENTS:
1. LPA Minutes_03102022

MINUTES

LOCAL PLANNING AGENCY
TO BE HELD MARCH 10, 2022
AT 5:30 PM
COMMISSION CHAMBERS
121 SW FLAGLER AVE.
STUART, FLORIDA 34994

LOCAL PLANNING AGENCY

Chair - Kelly Laurine
Vice Chair - Margaret Bromfield
Board Member - Larry Massing
Board Member - Bill Mathers
Board Member - Campbell Rich
Board Member - Ryan Strom
Board Member - Jackie Vitale
Ex Officio Board Member - Kimberly Everman

ADMINISTRATIVE

Development Director, Kev Freeman
Board Secretary, Jordan Pinkston

CALL TO ORDER

ROLL CALL

PRESENT: Chairperson Laurine, Vice Chairperson Bromfield, Board Member Rich, Board Member Massing, Board Member Strom, Board Member Vitale
ABSENT: Board Member Mathers

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

No vote was taken on the approval of the agenda.

APPROVAL OF MINUTES

1. Approval of November 4, 2021 Minutes

MOTION: Approve November 4, 2021 Minutes
MOVED BY: Jackie Vitale
SECONDED BY: Ryan Strom
Motion passed unanimously.

2. Approval of December 9, 2021 Minutes

MOTION: Approve December 9, 2021 Minutes
MOVED BY: Jackie Vitale
SECONDED BY: Ryan Strom
Motion passed unanimously.

COMMENTS FROM THE PUBLIC (3 Minutes Max.)

None.

COMMENTS BY BOARD MEMBERS (Non-Agenda Items)

None.

ACTION ITEMS

3. Annual Local Planning Agency Board Reorganization

MOTION:
Action: Reappoint Kelly Laurine as Chair.
Moved by: Jackie Vitale
Second by: Larry Massing
Motion passed unanimously.

Action: Reappoint Margaret Bromfield as Vice Chair.
Moved by: Jackie Vitale
Second by: Ryan Strom
Motion passed unanimously.

4. INDIAN STREET STORAGE DEVELOPMENT:

ORDINANCE 2482-2022 ; AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, APPROVING A MAJOR AMENDMENT TO A COMMERCIAL PLANNED UNIT DEVELOPMENT (CPUD) FOR A 6.59-ACRE PROPERTY AT 1053 SOUTHEAST INDIAN STREET; LOCATED APPROXIMATELY ONE-HALF MILE EAST OF THE INTERSECTION AT WILLOUGHBY ROAD AND SE INDIAN STREET ON THE NORTH SIDE OF THE ROAD, SAID LAND BEING MORE FULLY DESCRIBED IN EXHIBIT "A" ATTACHED; ESTABLISHING THE BEE SAFE STORAGE CPUD CONSISTING OF ONE, THREE-STORY, 135,000-SQUARE-FOOT SELF STORAGE BUILDING AND EIGHT, ONE-STORY STORAGE BUILDINGS; PROVIDING FOR CERTAIN DEVELOPMENT DOCUMENTS AND CONDITIONS; DECLARING THE PLAN TO BE CONSISTENT WITH THE CITY'S COMPREHENSIVE PLAN; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE, AND FOR OTHER PURPOSES.

PRESENTATION: Kev Freeman, Development Director
Morris Crady, Lucido & Associates

PUBLIC COMMENT (3-minute max): None.

PUBLIC COMMENTS VIA ZOOM: None.

BOARD COMMENT:

Larry Massing asked about signage for the building.

Kev Freeman said that there would typically be a unified signage plan.

Larry Massing expressed that he originally had concerns about the building exclusively being household storage, but feels more comfortable with the plan now.

Campbell Rich said that he was concerned about businesses being run out of storage units.

Lance Appelberg, Vice President of Bee Safe spoke about the franchise operations and regulations.

Campbell Rich asked about minors accessing the wine storage unit.

Lance Appelberg assured him that they had never encountered that situation and explained the hours.

Jackie Vitale expressed concerns about the location they chose.

Kev Freeman clarified the history of the site and expressed that most properties that are left for development will have to be a major amendment.

Ryan Strom said that he is comfortable with a 6 foot sidewalk with more landscaping but is concerned about the reduction of the east setback.

Kev Freeman explained the reason why staff is comfortable with the buffer after negotiations were made.

Ryan Strom expressed concerns about the size of the development and that the city is being over generous to what we are allowing.

Kelly Laurine asked about replanting the existing trees.

Morris Crady confirmed the tree planting process and addressed the three-story height for Willoughby residents. He expressed they are putting a building there that there is a current demand for.

The board discussed the maximum limits being placed on the site, stormwater drainage and buffers on the site.

Kev Freeman spoke about the changes made throughout the application process.

Kelly Laurine asked about the resident notification process.

Morris Crady confirmed that they are not rezoning, so it is allowed by right, which would not require notice.

Kelly Laurine asked about the proposed sidewalk size versus the current joined sidewalk.

Larry Massing questioned the underlying public and commercial land use.

Kev Freeman and Morris Crady addressed his concerns and gave the history of the site.

Discussion about the size of the sidewalk occurred.

Reasons for denial were clarified.

MOTION: Approve with the following conditions:
1. Reject waiver #3 for six-foot sidewalks and require more landscaping.
MOVED BY: Rich Campbell **SECONDED BY:** Jackie Vitale
VOTE:
YES: Rich Campbell
NO: Kelly Laurine, Larry Massing, Jackie Vitale, Ryan Strom, Margaret Broomfield
Motion denied 1/5.

STAFF UPDATE

Kev Freeman gave an update on properties being annexed into the city, stormwater and low impact development initiatives, and the Silverhorn project.

Discussion happened regarding the potential moratorium for development.

ADJOURNMENT

MOTION: Adjourn
MOVED BY: Margaret Broomfield **SECONDED BY:** Ryan Strom
VOTE:
YES: Kelly Laurine, Rich Campbell, Larry Massing, Jackie Vitale, Ryan Strom, Margaret Broomfield
NO: None
Motion passed unanimously.

CITY OF STUART, FLORIDA
AGENDA ITEM REQUEST
Local Planning Agency

Meeting Date: 4/14/2022 **Prepared by:** Erin Wohlitka

Title of Item:
Resolution 44-2022: The Oaks Classical Christian Academy requests approval of a Major Conditional Use Permit to increase the number of students permitted at their campus located at St. Mary's Episcopal Church. St. Mary's Episcopal Church is located at 623 SE Ocean Boulevard. (RC)

Summary Explanation/Background Information on Agenda Request:
On August 23, 2021, the City Commission of the City of Stuart adopted Resolution 75-2021, allowing The Oaks Classical Christian Academy to operate as a private parochial school at St. Mary's Episcopal Church. A condition of approval within Exhibit 'C' of the resolution set the maximum number of students to 25 children for enrollment in the school at this location.

On February 22, 2022, the Oaks Classical Christian Academy applied for a Major Conditional Use to increase the number of students permitted at The Oaks Classical Christian Academy from 25 to 90 students.

City staff has reviewed this Application and has determined that the subject Application has proved to be in substantial compliance with the Conditional Use Criteria set forth in Section 11.01.11 of the City's Land Development Code. The Applicant has demonstrated that there will be no negative impacts from the proposed Conditional Use on the subject property. Furthermore, City staff recommends approval due to the subject property's previous use as a pre-school and based on the limited days of property utilization and available number of parking spaces to accommodate the use.

See attached staff report for additional information.

Funding Source:
N/A

Recommended Action:
Staff recommends approval of Resolution 44-2022 subject to the conditions of approval located therein.

ATTACHMENTS:
1. A.1 Resolution 44-2022
2. A.2 Resolution 44-2022 - Exhibit 'D'
3. B. Staff Report
4. C. Application
5. D. Letters of Support
6. D. Resolution 46-1989
7. E.1 Public Notice Affidavit

BEFORE THE CITY COMMISSION

CITY OF STUART, FLORIDA

RESOLUTION NUMBER 44-2022

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, GRANTING A MAJOR CONDITIONAL USE APPROVAL TO ALLOW A SCHOOL, PRIVATE, PAROCHIAL, OR TECHNICAL, FOR THE OAKS CLASSICAL CHRISTIAN ACADEMY, INC. AT ST. MARY'S EPISCOPAL CHURCH; WITH SAID LANDS BEING MORE FULLY DESCRIBED IN EXHIBIT "A" ATTACHED; PROVIDING FOR CONDITIONS; PROVIDING FOR REPEAL OF ALL DEVELOPMENT ORDERS IN CONFLICT; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE, AND FOR OTHER PURPOSES.

WHEREAS, on August 23, 2021, the City of Stuart City Commission adopted Resolution 75-2021, approving a Major Conditional Use for The Oaks Classical Christian Academy to operate as a school with a maximum of 25 students at St. Mary's Church;

WHEREAS, on February 22, 2022, The Oaks Classical Christian Academy applied for a Major Conditional Use with the City Development Department to increase the number of students permitted from 25 students to 90 students;

WHEREAS, the City held a properly noticed hearing at a regularly scheduled City Commission to consider the application by The Oaks Classical Christian Academy, Inc., the Applicant, and St. Mary's Episcopal Church, the Property Owner, for a 2.47-acre property consisting

of two parcels opposite one another generally located north of the intersection at SE Ocean Boulevard and SE Amerigo Avenue;

WHEREAS, the City Commission, has considered the Petitioner's voluntary request to approve a Major Conditional Use to allow a school, private, parochial, or technical at St. Mary's Episcopal Church, and has also considered the recommendation of the City staff; and

WHEREAS, at the hearing the applicant showed by substantial competent evidence that the application does not create any detrimental effects on adjacent land uses; and

WHEREAS, the owners have committed to the City that the use will comply with all development codes, plans, documents, standards and conditions approved by the City Commission; and that it will bind its successors in title to any such commitments made upon this resolution; and

WHEREAS, at the hearing the Applicant showed by substantial competent evidence that the application is consistent with the Stuart Comprehensive Plan, and the Land Development Code of the City, and with the procedural requirements of law; and

WHEREAS, the Major Conditional Use will be in harmony with surrounding properties and their anticipated development;

WHEREAS, the foregoing recitals are true and adopted as findings of fact and conclusions of law.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA THAT:

SECTION 1: The foregoing recitals are true and adopted as findings of fact and conclusions of law.

SECTION 2: The legal description of the property is set forth in **Exhibit 'A'** attached hereto and made a part hereof by reference. A Map depicting the Property is attached hereto as **Exhibit 'B'** and made a part hereof by reference. The conditions of development attached hereto as **Exhibit 'C'** and made a part hereof by reference, and each shall constitute one of the approved documents.

SECTION 3: The following documents are on file as public records of the City, at the office of the City Clerk in City Hall, and attached hereto as **Exhibit 'D'**, hereinafter the 'Approved Documents', shall be deemed a part of the development conditions, and shall supplement any earlier approvals:

a. The Oaks Conditional Use Permit Justification Statement, prepared by *The Oaks Classical Christian Academy*, dated January 19, 2022 (4 Pages);
b. Traffic Circulation Plan, prepared by *The Oaks Classical Christian Academy*, dated February 12, 2022;
c. Traffic Analysis, prepared by *O'Rourke Engineering and Planning*, dated March 25, 2022;

SECTION 4: Except as otherwise provided herein, no development permits, site permits or building permits shall be issued by the City except in compliance with the aforesaid Approved Documents. The failure of the Applicant to comply with the Approved Documents, or with any term or condition of development set forth in this resolution, shall be deemed a zoning violation and no further permits, or other development approvals or orders shall be issued by the City to the owner until the violation has been resolved, and the matter may become the subject of a code enforcement action brought by the City. This section shall not impair the due process or other legal rights of the Developer to seek administrative or judicial redress.

SECTION 5: Following the adoption and acceptance of this by the Owner, and in addition to any other action for failure to otherwise comply with the Approved Documents, the City Development Director may obtain a hearing before the City Commission and shall thereupon give at least five (5) days written notice of the time, date and location of the hearing, along with specific notice of the alleged breach. At the hearing before the City Commission the Applicant may appear and may contest the allegation of breach or explain the reason or reasons for the breach. Upon a finding of a material breach of the Approved Documents and therefore, the Resolution(s) adopting the same, the City Commission may impose any or all the following:

a. Initiate the process to amend or repeal this or any other development order pertaining to the development.
b. Impose an administrative penalty of up to $1,000.00 for each violation, and up to $5,000.00 for each repeat violation that occurs, along with all reasonable costs, including attorney's fees incurred by the City.

Any breach of any provision or condition of this resolution by the Applicant shall be considered a zoning violation subject to any remedies provided herein, or as otherwise provided by law. In the event a violation found continues from day to day, each day the violation is found to continue shall be deemed a separate violation.

SECTION 6: All development orders in conflict with this resolution or any part thereof is hereby repealed to the extent of such conflict. If any provision of this resolution conflicts with any contractual provision between the City and the Property Owner(s) or Applicant(s) of the site, this resolution shall prevail.

SECTION 7: If any provision of this resolution or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications which can

be given effect without the invalid provision or application, and to this end the provisions of this resolution are declared severable.

SECTION 8: The complete execution and recording of this Resolution by the City Clerk shall occur no later than 90 days from the date of this approval, failing which this resolution shall become void.

(Remainder of this page intentionally left blank)

SECTION 9: Upon complete execution of this Resolution, including the Acceptance and Agreement by the Owner, the City Clerk is directed to record a Certified Copy of the same in the Public Records of Martin County, Florida.

Passed on first reading the __ day of _____ 2022.

Commissioner _____ offered the foregoing Ordinance and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

Commissioner _____ offered the foregoing Resolution and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

	YES	NO	ABSENT	ABSTAIN
MERRITT MATHESON, MAYOR				
TROY MCDONALD, VICE MAYOR				
BECKY BRUNER, COMMISSIONER				
EULA R. CLARKE, COMMISSIONER				
MIKE MEIER, COMMISSIONER				

ADOPTED on second and final reading this _____day of _____, 2022.

ATTEST:

_____ _____

MARY R. KINDEL MERRITT MATHESON
CITY CLERK MAYOR

APPROVED AS TO FORM
AND CORRECTNESS:

_____

MICHAEL J. MORTELL, ESQ.
CITY ATTORNEY

CITY'S ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before The above Ordinance, Acceptance and Agreement was acknowledged before me by means of ☐ physical presence or ☐ online notarization this _____ day of _____, 2022 Merritt Matheson, Mayor, and Mary Kindel, City Clerk, respectively, of the City of Stuart, Florida, a Florida municipal corporation, who ☐ are personally known to me or ☐ have produced _____as identification.

(Notary Seal)

_____

Signature of Notary Public

Printed Name: _____

ACCEPTANCE AND AGREEMENT

BY SIGNING THIS ACCEPTANCE AND AGREEMENT, THE UNDERSIGNED HEREBY ACCEPTS AND AGREES TO ALL OF THE TERMS AND CONDITIONS CONTAINED IN A CONDITIONAL USE APPROVAL AND IN ALL EXHIBITS, ATTACHMENTS AND APPROVED DOCUMENTS, INTENDING TO BE BOUND THEREBY, AND THAT SUCH ACCEPTANCE AND AGREEMENT IS DONE FREELY, KNOWINGLY, AND WITHOUT ANY RESERVATION, AND FOR THE PURPOSES EXPRESSED WITHIN THE ABOVE RESOLUTION. IF IT IS LATER DISCOVERED THAT THE UNDERSIGNED, OR ITS SUCCESSORS OR ASSIGNS HAVE FAILED IN ANY MATERIAL WAY TO COMPLY WITH THIS RESOLUTION, ITS CONDITIONS, AND THE APPROVED DOCUMENTS, THE UNDERSIGNED UNDERSTANDS AND AGREES THAT THIS RESOLUTION MAY BE AMENDED OR REPEALED BY THE CITY COMMISSION, AND THAT OTHER ACTIONS MAY BE TAKEN AGAINST THE UNDERSIGNED BY THE CITY, INCLUDING BUT NOT LIMITED TO CODE ENFORCEMENT ACTIONS, PERMIT AND LICENSING REVOCATIONS, AND ALL APPLICABLE CIVIL AND CRIMINAL ACTIONS.

IN WITNESS WHEREOF THE UNDERSIGNED HAS EXECUTED THIS ACCEPTANCE AND AGREEMENT:

WITNESSES:

_____

Print Name: _____

_____

Print Name: _____

APPLICANT: The Oaks Classical Christian Academy, Inc.

Signature: _____

Print Name: _____

PROPERTY OWNER: St. Mary's Episcopal Church

Signature: _____

Print Name: _____

OWNERS ACKNOWLEDGMENT

STATE OF FLORIDA,
COUNTY OF _____

The above Resolution, Acceptance and Agreement was acknowledged before me by means of ☐ physical presence or ☐ online notarization, this _____ day of _____, 2022, by _____

Personally Known OR Produced Identification

Type of ID Produced _____

Signature of Notary Public: _____

Commission Expires:

Notary Seal:

EXHIBIT A – LEGAL DESCRIPTION

EDG-RIVA ALL OF BLK 15 (LESS S 13' R/W) BLK 15

HILDABRAD PARK LOTS 1 TO 12 INC BLK 11

EXHIBIT B – LOCATION MAP

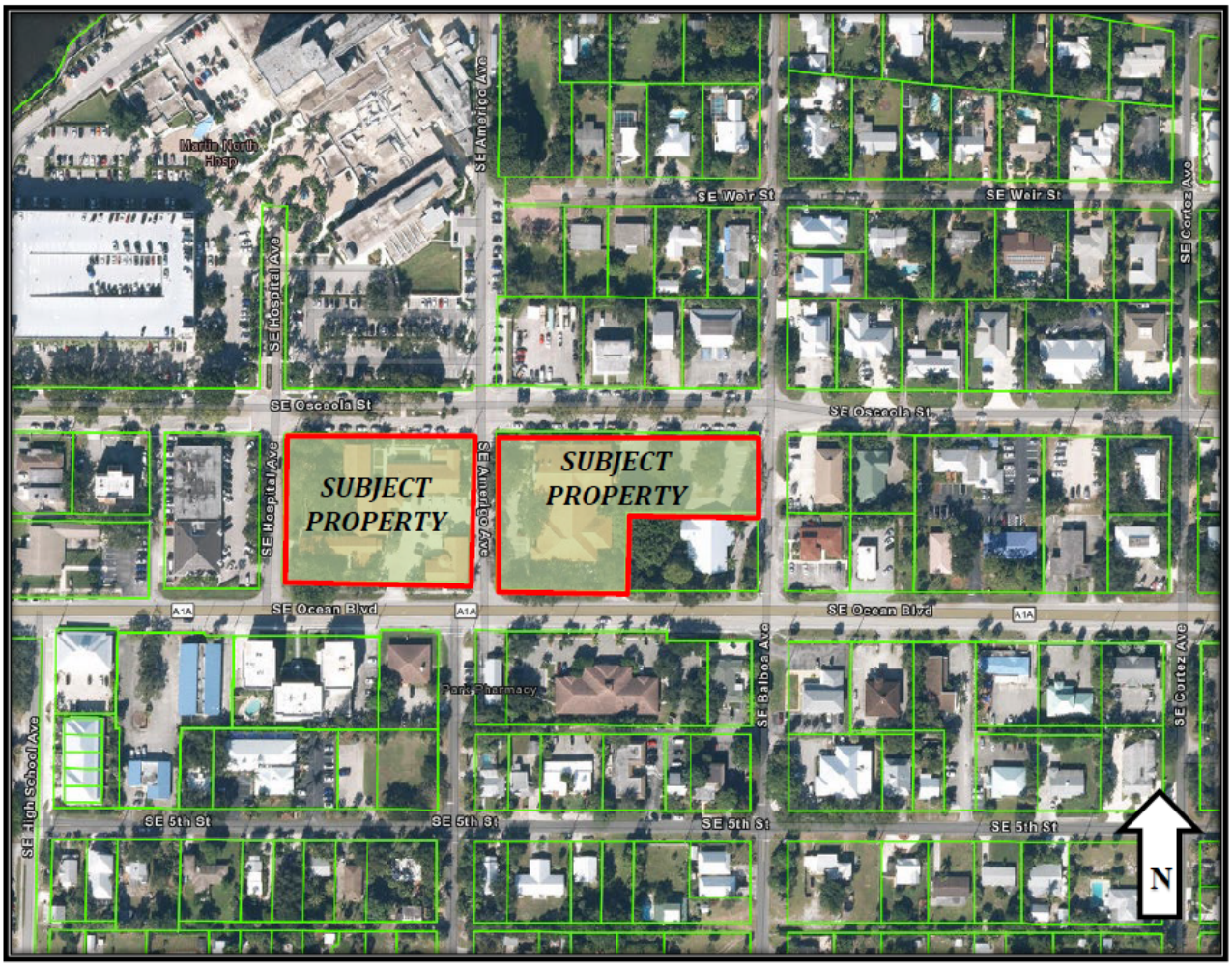


EXHIBIT C – DEVELOPMENT CONDITIONS

1. The Major Conditional Use Approval shall comply with the following documents (**Exhibit 'D'**):

    a. The Oaks Conditional Use Permit Justification Statement, prepared by *The Oaks Classical Christian Academy*, dated January 19, 2022 (4 Pages);
    b. Traffic Circulation Plan, prepared by *The Oaks Classical Christian Academy*, dated February 12, 2022;
    c. Traffic Analysis, prepared by *O'Rourke Engineering and Planning*, dated March 25, 2022;

2. The approval shall comply with all regulations within the City's Land Development Code. Any modifications to the proposed use that exceeds a maximum of 90 students, or any other physical modifications to the subject site in an increase of 10% of the existing site, may be approved by the City's Development Director, provided however, the Development Director may refer the matter to the City Commission for approval via public hearing.

3. All applicable state or federal permits must be obtained before the commencement of any activities associated with this use. Issuance of this development order/permit/approval by the City of Stuart does not in any way create any right on the part of an applicant to obtain a permit from a state or federal agency and does not create any liability on the part of the City of Stuart for the issuance of this order/permit/approval if the applicant fails to obtain requisite approvals or fulfill the obligations imposed by a state or federal agency or undertakes actions that result in a violation of state or federal law.

4. At no time shall vehicular traffic associated with this use utilize any right-of-way (ROW) for spillover purposes onto SE Osceola Street, SE Amerigo Avenue, and SE Ocean Boulevard.

Exhibit D – APPROVED DOCUMENTS

The Oaks

Conditional Use Permit Request

Justification Statement

January 19, 2022

The Oaks Classical Christian Academy is requesting approval of a conditional use permit to increase the number of students from 25 to 90 students. The school is located within the St. Mary's Episcopal Church property at 623 SE Ocean Boulevard. No changes are proposed to the physical property or the existing buildings.

Project Contacts

Kathryn Crews
Head of School, The Oaks
623 SE Ocean Blvd.
Stuart, FL 34996

Susan O'Rourke, P.E.
Traffic Engineer
22 SE Seminole Street
Stuart, FL 34994

Kathryn DeWitt, AICP
Land Planner
813 SE Krueger Pkwy
Stuart, FL 34996

Location

The Oaks Academy is located within the St. Mary's Episcopal Church property. The property is bordered by SE Ocean Boulevard to its south and Osceola Street on its north. Its western boundary abuts SE Hospital Avenue. The property is bisected by SE Amerigo Avenue. The western parcel is 1.61 acres in size. The eastern parcel is 1.82 acres.

Background

St. Mary's Episcopal Church has been in operation since 1932. The church was designed to accommodate a variety of uses within its walls. The church facilitates a used book store, a weekly community kitchen, clothing thrift store, youth groups, and Sunday services. The church services operation on Saturday evenings and Sunday mornings. Mary's Kitchen, which has been feeding the needy in our community for over 23 years, operates on Wednesday evenings. Historically, a preschool operated out of the church for a time.

Last year, the City Commission approved The Oaks Academy to operate on the St. Mary's Church property with a capacity of 25 students.

The Oaks is a hybrid University-Model® school. Today's parents are looking for ways to give their children an excellent education in non-traditional settings, in which they may have more time together as a family. In University-Model schools, students receive instruction from professional educators on a central campus 2 - 3 days per week and continue to learn at home

(our “satellite campuses”) the other days of the week under the guidance of the professional teacher. This gives parents the gift of time with their children, while still having a strong academic framework, accountability, and the advantages that a classroom setting affords.

This type of school did not previously exist on the Treasure Coast, but is highly sought after in many other states and communities. Some parents drive South to Palm Beach County for their children to attend similar schools.

By being part of the association of University-Model schools as well as another school association, we are held to high standards and work toward accreditation, ensuring the school will be a strong option for local families and in our community for the long term.

Land Use & Zoning
The subject property has a Future Land Use designation of Office-Residential and a Zoning designation of R-3 Multifamily / Office. No changes are proposed to the existing land use and zoning designations.

Subject Request
The Application is requesting approval of an increase of students from 25 to 90 students at The Oaks Academy. The Oaks is a hybrid university model school that operates on the St. Mary’s campus two - three days a week. The students receive instruction from professional teachers on these days with weekly assignments that are completed at home on the remaining weekdays.

The school has a current approval for the 25 students, which it maintains today. With the success of its first year along with the addition of younger siblings from current school families, there is a demand for additional student capacity. The church property has five classrooms available for use by the school. Currently, the school utilizes three of these classrooms with approximately 7-9 students in each classroom. At full capacity, the five classrooms could support a total of 90 students. While it could be several years before full capacity is reached, from a planning and financial perspective, it is extremely beneficial for the school to be able to establish a maximum threshold. This will enable the school to offer enrollment to new students, continue to offer student scholarships through the state, and allow long-term staff and student body visioning. The school will utilize the existing classrooms on site and will not require any physical modifications.

THE OAKS
A Classical Christian Academy

Parking

The church property currently contains 86 parking spaces. Per the latest site plan on file with the City, the church sanctuary requires 51 spaces and the office building requires 22 spaces. This leaves a surplus of 13 parking spaces on site. While the subject school functions quite differently than a traditional 5-day a week school, the standard school parking calculations were used for the purposes of this application, as the City's parking code does not speak to a hybrid school option. Based on the City's Code, a total of 13 parking spaces would be required for the school to utilize a total of 5 classrooms with 8 employees. (See proposed parking table below.) The Oaks currently utilizes the classrooms identified as "Youth #1, #2, and #3" (highlighted in yellow on the parking and circulation exhibit). At maximum capacity, the school would also have access to "Nursery Rooms 1 & 2" (highlighted in blue).

PARKING			
USE	**RATIO**		**REQ SPACES**
CHURCH	1 per 4 seats in main sanctuary	204	51
OFFICE	1 per 300 SF	6,706 SF	22
SCHOOL	1 per classroom, plus 1 space per employee, plus 1 space for each 6 seats in auditorium or other areas that may be used for public assemblies; together with adequate stacking for pick-up/drop-off activities consistent with the student population.	5 classrooms + 8 employee	13
		TOTAL REQ	**86**
		TOTAL PROVIDED	**86**

Churches and schools have always operated harmoniously in shared spaces due to the opposite nature of their activities. The church's high-capacity times are Saturday evenings, Sunday mornings, and Wednesday evenings for the Mary's Kitchen ministry, whereas the school is operating during the weekdays. This relationship allows for shared parking to be utilized; however, the proposed parking calculations have been completed without the assumption of sharing parking spaces.

THE OAKS
A Classical Christian Academy

Traffic and Vehicular Circulation

The Oaks School will have a traffic impact of 95 AM peak hour trips with 53 in and 42 out and 56 PM peak hour trips with 26 in and 30 out. These trips will not cause levels of service to fall below acceptable levels in the future. Therefore, the project does not require additional analysis and is deemed to be consistent with city transportation concurrency requirements.

The school operates its pick-up and drop-off on site at 8:15am and 3:00pm. The parents are directed to approach the school property from Osceola Street, turn on Amerigo Street and then turn west into the parking lot to pick-up / drop-off. The cars will then exit via a right-hand turn onto SE Ocean Boulevard. A total of five cars are able to stack within the parking lot at one time. The pick-up/drop-off process takes approximately 10-15 minutes to complete. This operation has worked very successfully with no issues or complaints from the church and any neighboring tenants.

Conclusion

We greatly appreciate the opportunity that the City Commission gave us to open the school last year. It has been incredible to see our dreams of a University Model school come to fruition. Our students are working hard, enjoying the school days, and love participating in the community. We've enjoyed participating in the Stuart Veteran's Day parade together and completed our first community service day, which we plan to continue to grow in the future. We have great relationships with St. Mary's Church staff and members, many of them commenting that they're thrilled to see local youth using the grounds through The Oaks.

In late September, we completed all steps necessary to become eligible for scholarships through the state of Florida's scholarship programs. Currently, a majority of our 19 students receive the scholarships based on income and unique abilities/needs. We are pleased that the scholarships make our school accessible to families of all income and ability levels.

Thank you for considering this request to increase our student body capacity. We look forward to working with staff and providing any additional information needed.

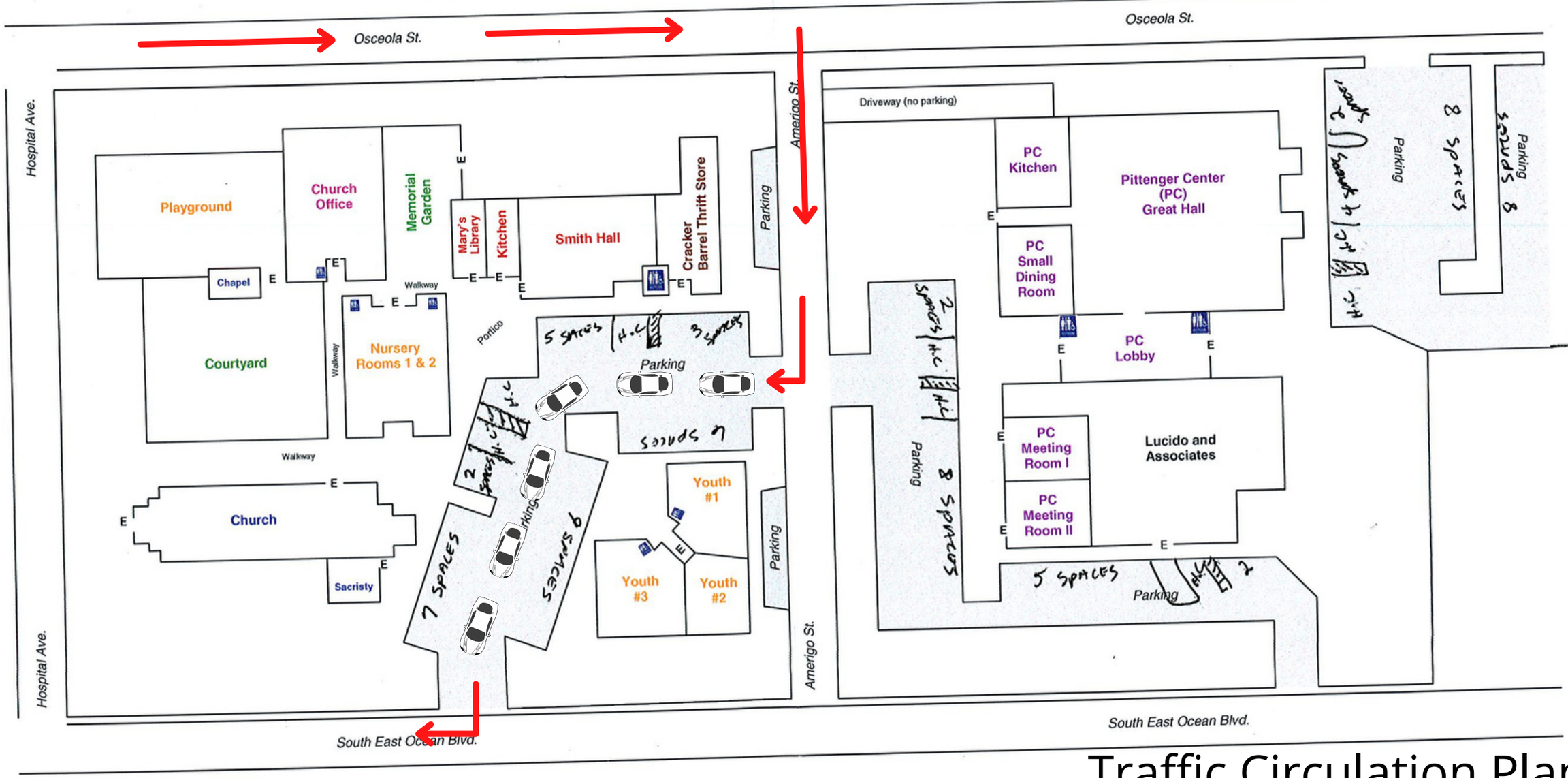
St. Mary's Episcopal Church Campus

623 East Ocean Blvd., Stuart, Florida, 34994

772-287-3244

Cracker Barrel Thrift Store
Smith Hall & Mary's Library
Youth and Nursery
Pittenger Center & Meeting Rooms
E = Entrances
= Restrooms

Church & Outside Chapel
Church Office
Courtyard & Memorial



Traffic Circulation Plan

Date: 2.1.22

O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS

FOR

The Oaks School

Prepared For:

The Oaks School
2101 SW Racquet Club Drive
Palm City, FL 34990

Prepared By:

O'Rourke Engineering & Planning
22 SE Seminole Street
Stuart, FL 34994
(772)781-7918

February 17, 2022
Revised March 25, 2022

MR22012.0

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole Street Stuart, Florida 34994 772-781-7918	Professional Engineer Susan E. O'Rourke, P.E. Date signed and sealed: 3/25/2022 License #: 42684

O'ROURKE
ENGINEERING & PLANNING

February 17, 2022

Ms. Katie Crews
The Oaks School
2101 SW Racquet Club Drive
Palm City, FL 34990

Re: The Oaks School

Dear Ms. Crews:

O'Rourke Engineering & Planning has completed the traffic statemen for the proposed private school (K-8) of 90 students at the existing St. Mary's Episcopal Church. The private school is located north of SE Ocean Boulevard and west of SE Amerigo Avenue in Martin County. The steps in the analysis and the ensuing results are presented herein.

For projects with a de minimus impact, only a limited traffic statement is required.

It has been a pleasure working with you.

Respectfully submitted,
O'ROURKE ENGINEERING & PLANNING

Susan E. O'Rourke, P.E.
President

22 SE Seminole Street | Stuart, FL 34994 | 772-781-7918 | SEORourke@comcast.net

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a traffic analysis for the proposed private school of 90 students located north of SE Ocean Boulevard and west of SE Amerigo Avenue. **Appendix A** includes the project site plan. The purpose of this analysis is to determine the impact of the development on the roadway.

PROJECT DESCRIPTION

The project site is located on the north side of SE Ocean Boulevard west of SE Amerigo Avenue. The proposed project consists of a proposed private school (K-8) with a capacity of 90 students. The current enrollment is approximately 25 students. The project will take access off SE Amerigo Avenue and SE Ocean Boulevard. The project is expected to be built out by 2025.

Trip Generation — Private School (K-8) rates from the ITE Trip Generation 11th Edition were applied to the 90 students.

The trip generation of the site is summarized in **Table 1**.

As shown, the project will generate 95 AM peak hour trips with 53 in and 42 out and 56 PM peak hour trips with 26 in and 30 out.

Table 1 - Trip Generation

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
School - Private School (K-8)	530	90	Sudents	T = 4.11(X)	50%	50%	185	185	370

Source: ITE 11th Edition Trip Generation Rates

Table 1b: AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
School - Private School (K-8)	530	90	Sudents	Ln(T) = 0.95 Ln(X) + 0.27	56%	44%	53	42	95

Source: ITE 11th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
School - Private School (K-8)	530	90	Sudents	Ln(T) = 0.98 Ln(X) - 0.38	46%	54%	26	30	56

Source: ITE 11th Edition Trip Generation Rates

PROJECT DISTRIBUTION/ ASSIGNMENT/ IMPACT

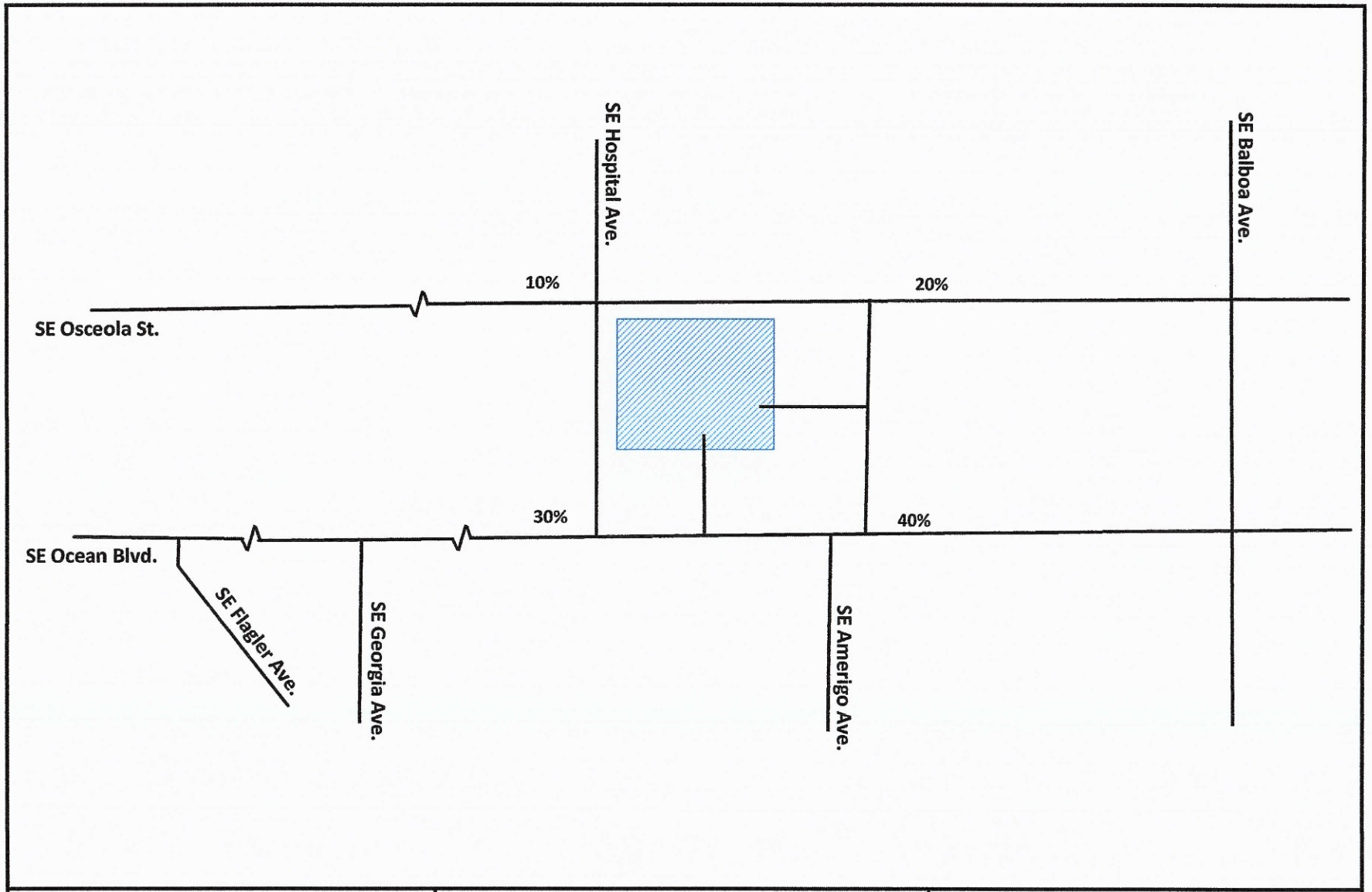
Distribution/ Assignment – The project traffic was distributed by general geographic direction and then assigned to the roadway network. The project assignment is shown in **Figure 1**.

Impact – To determine the project impact in 2025, the project traffic was assigned to the network. The City of Stuart has 5% criteria. The project impact is less than 5% on all links. Therefore, only the adjacent links of Ocean Boulevard and Osceola Street were analyzed. The existing capacity and growth rates were taken from the Martin County 2019 Roadway Level of Service Report and the FDOT Traffic Online**.** The driveway at Ocean Boulevard and the intersection of Amerigo and Osceola were counted to provide 2022 values. As shown, Ocean Boulevard and Osceola Street will operate at an acceptable LOS at buildout. The impacts to Ocean Boulevard and Osceola Street are summarized in **Table 2**.

The applicable pages from the Martin County 2019 Roadway Level of Service Report, the 2020 Quality Level of Service Handbook and the 2022 traffic counts are also included in **Appendix B**.

DRIVEWAY VOLUMES

There will be two project driveways, one located on Ocean Boulevard to the south (driveway 1), and one located at Osceola Street to the east (driveway 2). Ocean Boulevard and Osceola Street provide full access to the site throughout the day. However, during car line, Osceola will be entry via right turn only and Ocean will be exit via right turn only. The driveway volumes are included in **Figure 2**. The driveway will accommodate the minor increase in traffic. The driveway analysis data are included in **Appendix C**.



Attachment E - Driveway Volumes - The Oaks.02.18.22

TABLE 2a - 2025 Link Analysis - AM

Segment	From	To	Greater than 1%	Direction	2019 Directional Volumes	Growth Rate	2025 AM Peak Hour + Growth	Peak Hour Service Capacity (2025)	Project Volume Peak Direction	Total Traffic (Peak Direction)	% Project of Capacity-Peak Hour	Does Project Meet Concurrency?	Project Percent Assignment
SE Ocean Blvd[a]	Flagler Ave	Project Entrance	YES	EB	406	0.50%	412	790	53	465	6.71%	YES	100%
	Flagler Ave	Project Entrance	YES	WB	490	0.50%	497	790	13	510	1.65%	YES	30%
	Project Entrance	Palm Beach	YES	EB	408	0.50%	414	790	17	431	2.15%	YES	40%
	Project Entrance	Palm Beach	YES	WB	494	0.50%	501	790	21	522	2.66%	YES	40%
SE Osceola St	SE Georgia Ave	Amerigo	YES	EB	94	0.50%	95	750	42	137	5.60%	YES	80%
	SE Georgia Ave	Amerigo	NO	WB	72	0.50%	73	750	4	77	0.53%	YES	10%
	Amerigo	Balboa Ave.	YES	EB	84	0.50%	85	790	8	93	1.01%	YES	20%
	Amerigo	Balboa Ave.	YES	WB	78	0.50%	79	790	11	90	1.39%	YES	20%

Note: All volumes are March 2022 count data

Also, during drop off an dpick up, traffic enters as a right turn into the driveway on Amerigo and exits in a right turn onto Ocean, before returning to the ultimate assignment shown on Figure 1

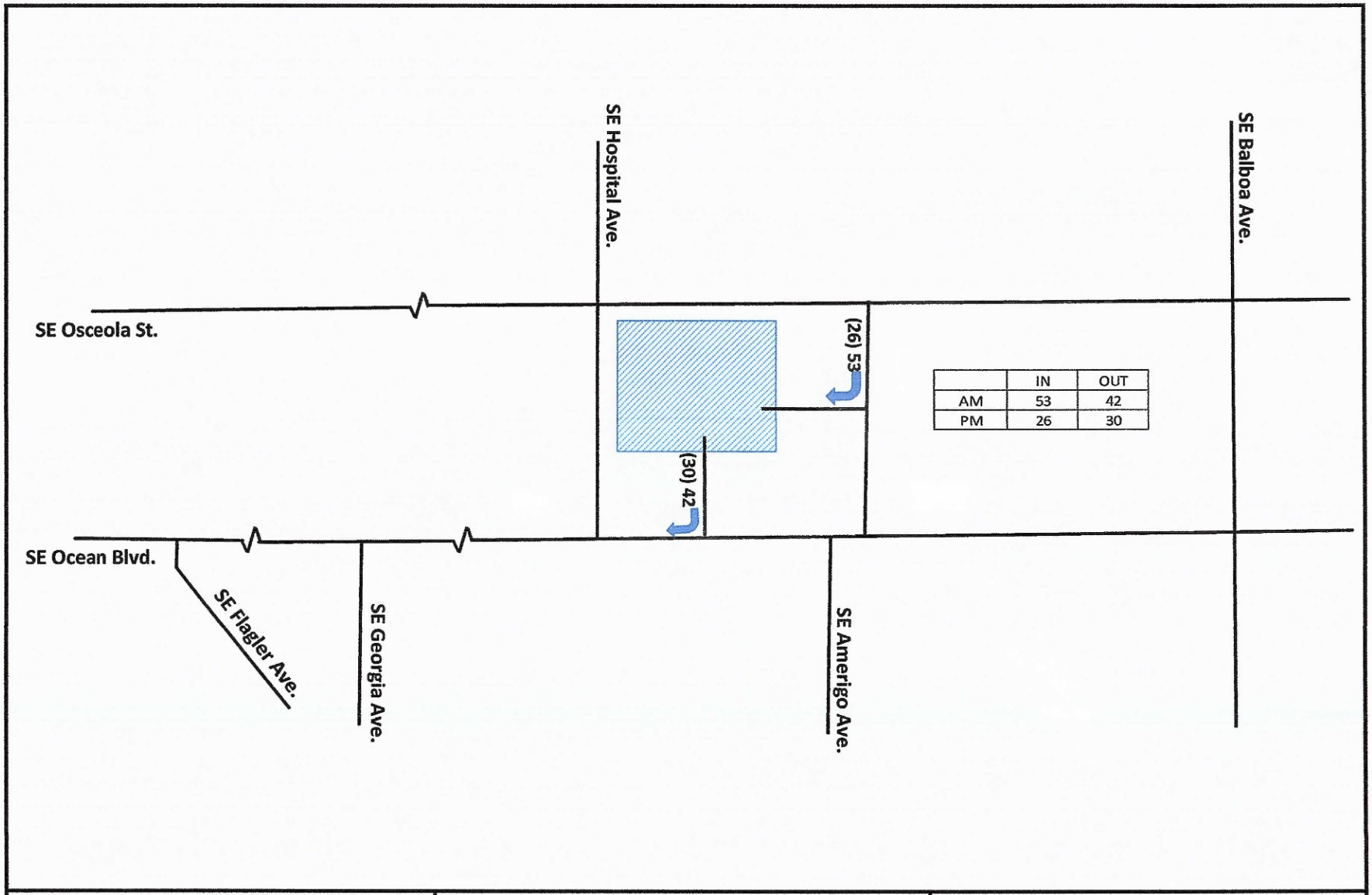
Two-Way:	95
Net In:	53
Net Out:	42
Years Grown:	3

TABLE 2b - 2025 Link Analysis - PM

Segment	From	To	Greater than 1%	Direction	2019 Directional Volumes	Growth Rate	2025 AM Peak Hour + Growth	Peak Hour Service Capacity (2025)	Project Volume Peak Direction	Total Traffic (Peak Direction)	% Project of Capacity-Peak Hour	Does Project Meet Concurrency?	Project Percent Assignment
SE Ocean Blvd[a]	Flagler Ave	Project Entrance	YES	EB	456	0.50%	463	790	26	489	3.29%	YES	100%
	Flagler Ave	Project Entrance	YES	WB	600	0.50%	609	790	9	618	1.14%	YES	30%
	Project Entrance	Palm Beach	YES	EB	452	0.50%	459	790	12	471	1.52%	YES	40%
	Project Entrance	Palm Beach	YES	WB	598	0.50%	607	790	10	617	1.27%	YES	40%
SE Osceola St	SE Georgia Ave	Amerigo	YES	EB	134	0.50%	136	750	21	157	2.80%	YES	80%
	SE Georgia Ave	Amerigo	NO	WB	82	0.50%	83	750	3	86	0.40%	YES	10%
	Amerigo	Balboa Ave.	NO	EB	132	0.50%	134	750	6	140	0.80%	YES	20%
	Amerigo	Balboa Ave.	NO	WB	92	0.50%	93	750	5	98	0.67%	YES	20%

Note: All volumes are March 2022 count data

Two-Way:	56
Net In:	26
Net Out:	30
Years Grown:	3


SE Hospital Ave.
SE Balboa Ave.
SE Osceola St.
(26) 53
(30) 42
SE Ocean Blvd.
SE Flagler Ave.
SE Georgia Ave.
SE Amerigo Ave.
IN OUT
AM 53 42
PM 26 30
NTS
O'ROURKE ENGINEERING & PLANNING
22 SE Seminole Street
Stuart, Fl, 34994
Job Number: MR22012.0
Date: 02-17-22
Legend
= Project Location
XX (XX) = AM (PM)
Figure 2
Driveway Volumes
The Oaks Private School

QUEUEING

The project uses a drop off and pick up line. School starts at 8:15 AM and ends at 3:00 PM. There are two to three drop off positions depending on demand. During the peak drop off periods, 53 vehicles would enter. Assuming they arrive within 20 minutes, that is 2 to 3 vehicles per minute. The vehicles enter and Amerigo and exit onto Ocean Boulevard. There is approximately 200 feet designated for drop off. The school can process 70 cars in the 20 minutes. Therefore, the 53 vehicles will be able to process without significant queue.

Queue = Traffic Intensity / (1-Traffic Intensity) = 53/70(1-55/70) = .757/.243 = 3 Vehicles or 75 feet of queue

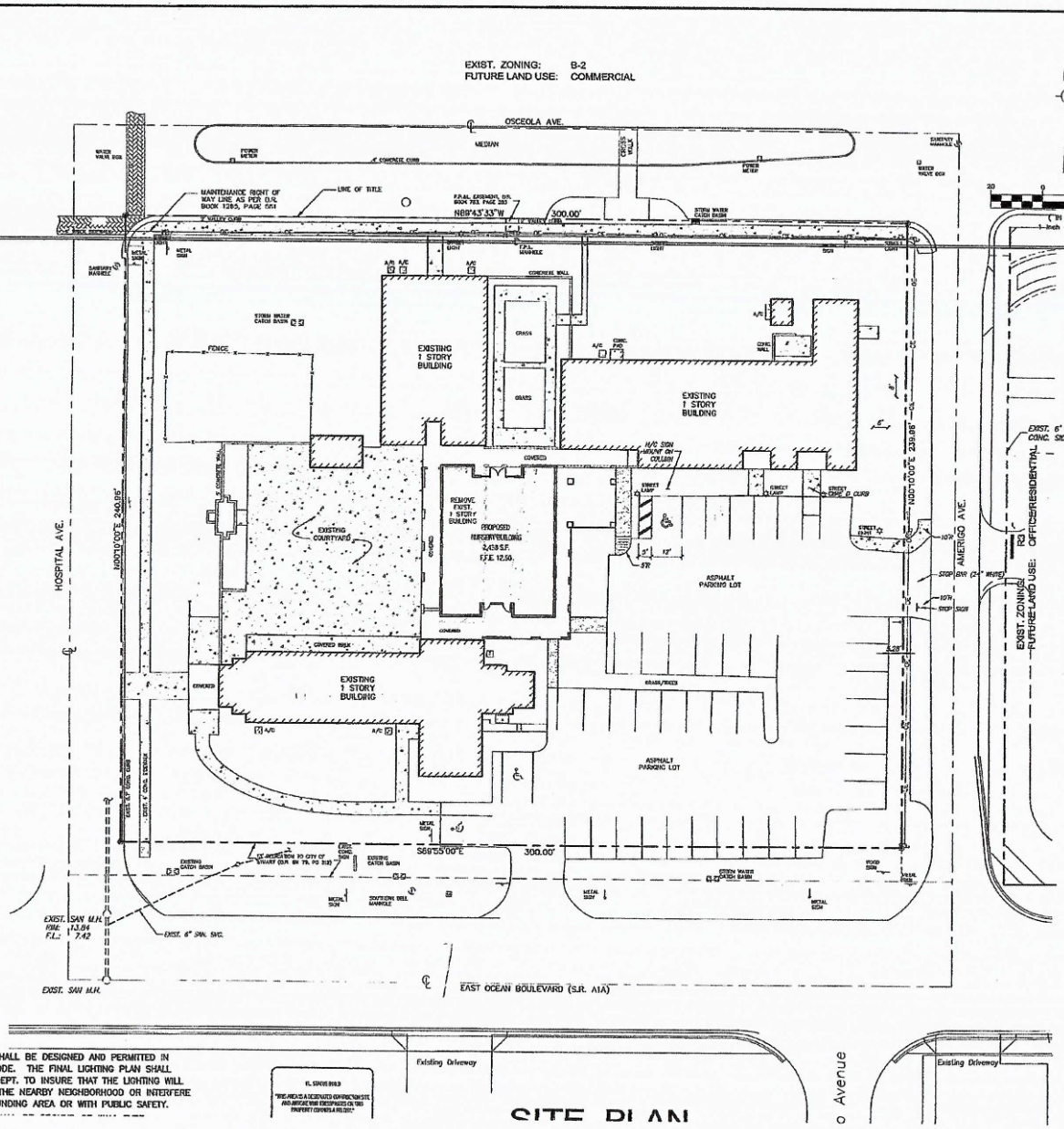
The city reviewer has asked for a calculation if 25% of the vehicles arrive before the processing of students into or out of school begins. This value represents approximately 13 vehicles on site in 325 feet. The school will form two lines for waiting vehicles on site, providing 400 feet, if needed. Once processing starts, additional vehicles will enter, and the processed vehicles will depart. There will be 40 arriving after the initial queue. The queue will not extend beyond the initial queues since the processing rate is higher than the arrival rate. It will take approximately 10 to 12 minutes to dissipate the queue, with approximately one car length reduction every 2 minutes. (entry of 4 to 6 vehicles in 2 minutes and processing 7 vehicles every 7 minutes)

CONCURRENCY REVIEW/ CONCLUSION

The Oaks School will have a traffic impact of 95 AM peak hour trips with 53 in and 42 out and 56 PM peak hour trips with 26 in and 30 out. These trips will not cause levels of service to fall below acceptable levels in the future. Therefore, the project does not require additional analysis and is deemed to be consistent with city transportation concurrency requirements.

APPENDIX A

Site Plan



GENERAL NOTES

1. EXTERIOR LIGHTING (IF PROPOSED) SHALL BE DESIGNED AND PERMITTED IN ACCORDANCE WITH CITY OF STUART CODE. THE FINAL LIGHTING PLAN SHALL BE REVIEWED BY THE CITY'S POLICE DEPT. TO INSURE THAT THE LIGHTING WILL NOT IMPACT OR PRODUCE GLARE ON THE NEARBY NEIGHBORHOOD OR INTERFERE WITH THE AESTHETICS OF THE SURROUNDING AREA OR WITH PUBLIC SAFETY.

PROPERTY DESCRIPTION:

LOTS 1 THROUGH 12, BOTH INCLUSIVE, BLOCK 15ACCORDING TO THE PLAT THEREOF FILED JUNE, 21, 1926, AND RECORDED IN PLAT BOOK 1, PAGE 53, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA; EXCEPTING THEREFROM, HOWEVER, THE SOUTH 13 FEET OF LOTS 7 THROUGH 12, BOTH INCLUSIVE, SAID BLOCK 15

RECEIVED
JUN 28 2005

SITE DATA

PROJECT NAME:	ST. MARY'S EPISCOPAL CHURCH
LOCATION:	623 EAST OCEAN BOULEVARD STUART, FLORIDA
EXISTING USE:	CHURCH
ZONING:	R-3
LAND USE:	OFFICE/RESIDENTIAL & LOW DENSITY RESIDENTIAL

APPROVED
STUART FIRE RESCUE
7/13/05

PARKING REQUIREMENTS

USE	BASIS	PARKING REQUIREMENTS
MAIN SANCTUARY	204 Seats	1 Sp. per 3 Seats = 51 Spaces
LEASABLE OFFICE	6,706 s.f.	1 Sp. per 300 s.f. = 22 Spaces

TOTAL NO. OF SPACES REQUIRED: 73

C. CALVERT MONTGOMERY & ASSOCIATES, INC.
Engineers-Surveyors (LB & CA C000160)
P.O. Box 82...959 S. FEDERAL HWY.....STUART, FLORIDA 34995
TEL. (772) 287-3535 FAX (772) 220-2983

BUILDING ADDITIONS FOR
ST. MARY'S EPISCOPAL CHURCH
STUART, FLORIDA

SITE PLAN • HORIZONTAL CONTROL

PROJECT NO.

REVISION | DATE
DESIGNED BY: | DATE: 02.04.05
CHECKED BY: | SCALE: 1"=20'

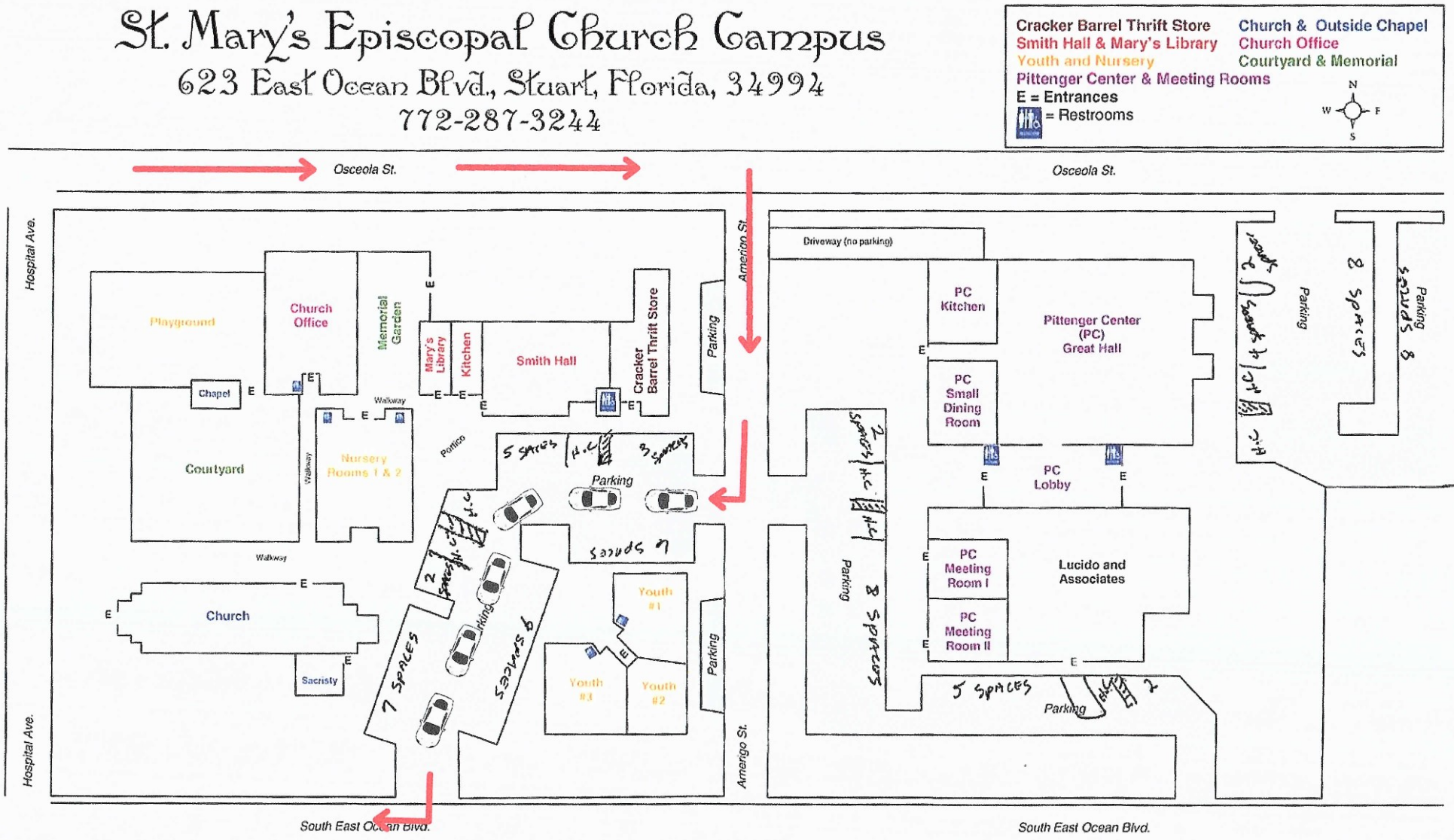
SHEET 1 OF 2

r:\St. Mary's\Civil\...St Mary's_Civil3_Nursery.dwg Thu Jun 23 12:06:39 2005

St. Mary's Episcopal Church Campus

623 East Ocean Blvd., Stuart, Florida, 34994

772-287-3244



Traffic Circulation Plan

Date: 2.12.22

APPENDIX B

Martin County Roadway Level of Service Report

2020 Quality Level of Service Handbook

Existing Count Data

Martin County 2019 Roadway Level of Service Inventory Report

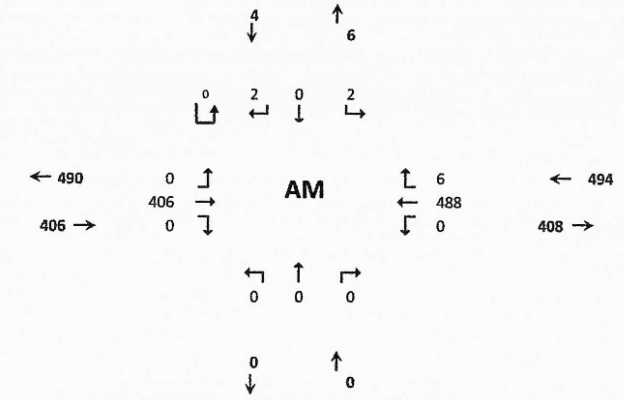
Road Name	From	To	Type	Generalized Service Capacity	2019 Average Annual Daily Traffic	2019 Peak Hour Directional Volume	2019 Generalized LOS	Avg. Annual Growth Rate
Mapp Rd	South End	CR-714	Class II: 2-Ln Undivided	750	5,236	249	C	0.5%
Mapp Rd	CR-714	SR-714	Class II: 2-Ln Undivided	750	11,668	557	D	0.5%
Mapp Rd	SR-714	Matheson Ave	Class II: 2-Ln Undivided	750	5,278	301	C	0.5%
Mapp Rd	Matheson Ave	North End	Class II: 2-Ln Undivided	750	7,320	314	C	0.7%
Market Pl	SR-5	Commerce Ave	Class II: 2-Ln Divided	790	4,589	254	C	0.6%
Matheson Ave	SR-714	Mapp Rd	Class II: 2-Ln Undivided	750	5,845	324	C	0.5%
Monroe St	SR-5	Commerce Ave	Class II: 2-Ln Undivided	750	1,874	161	C	3.0%
Murphy Rd	Mapp Rd	High Meadow Ave	Class II: 2-Ln Undivided	750	6,712	375	D	4.5%
Murphy Rd	High Meadow Ave	St Lucie County	Class II: 2-Ln Undivided	750	9,721	908	F	3.3%
Ocean Blvd	Flagler Ave	Palm Beach Rd	Class II: 2-Ln Divided	790	10,107	565	D	0.5%
Ocean Blvd	Palm Beach Rd	SR-714	4-Ln Divided Non-State	1465	12,415	652	C	0.5%
Osprey St	SR-5	CR-A1A	Class II: 2-Ln Undivided	750	5,203	216	C	2.3%
Osprey St	CR-A1A	Gomez Ave	Class II: 2-Ln Undivided	750	1,926	118	C	0.5%
Palm Beach Rd	SR-714	Ocean Blvd	2-Ln Divided Non-State	710	8,894	426	D	0.5%
Palm City Rd	SR-714	SR-5	Class II: 2-Ln Undivided	750	7,832	419	D	3.8%
Palmer St	CR-707	Indian River Dr	Class II: 2-Ln Undivided	750	3,111	213	C	3.8%
Pineapple Wy	CR-707A(Jensen Beach Blvd.)	SR-732	Class II: 2-Ln Undivided	750	11,820	614	D	3.9%
Pomeroy St	SR-76	Willoughby Blvd	Class II: 2-Ln Divided	790	8,781	479	D	0.5%
Pomeroy St	Willoughby Blvd	SR-5	Class II: 2-Ln Divided	790	8,687	466	D	2.3%
Salerno Rd	SR-76	Willoughby Blvd	Class I: 2-Ln Undivided	880	7,831	429	C	1.5%
Salerno Rd	Willoughby Blvd	SR-5	Class II: 2-Ln Divided	790	9,509	524	D	1.1%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB) and Murphy Rd (PM/NB).

TURNING MOVEMENT VOLUME COUNTS

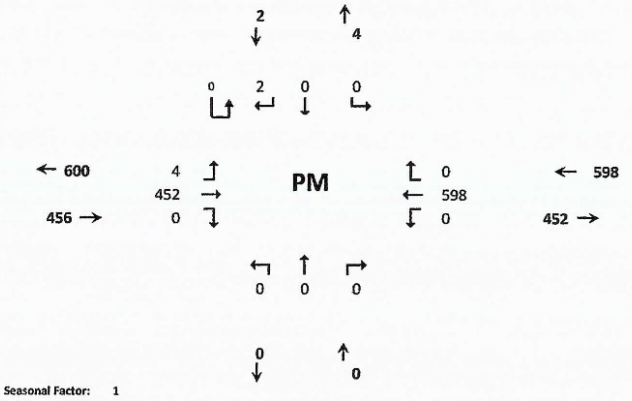
N/S STREET: Project Driveway
E/W STREET: Ocean Boulevard
CONTROL: TWSC
FILENAME: River Place
COUNT DATE: 3/24/2022
DAY: Thursday
CITY: Stuart
INTERSECTION: Project Driveway X Ocean Blvd
REPORT DATE: 3/24/2022
ANALYSIS YEAR: 2022

15 Min Period	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15														0	0
7:15-7:30														0	225
7:30-7:45														0	452
7:45-8:00														0	677
8:00-8:15	0	0	0	0	1	0	0	0	109	0	0	112	3	225	904
8:15-8:30	0	0	0	0	0	0	1	0	94	0	0	132	0	227	
8:30-8:45	0	0	0	0	1	0	0	0	109	0	0	112	3	225	
8:45-9:00	0	0	0	0	0	0	1	0	94	0	0	132	0	227	
* The Count values have been doubled to give a full hour															
AM PEAK HOUR IS FROM:	8:00AM TO 9:00AM														
Volumes	0	0	0	0	2	0	2	0	406	0	0	488	6	904	
Season Factor	0	0	0	0	2	0	2	0	406	0	0	488	6	904	
Growth	0	0	0	0	2	0	2	0	406	0	0	488	6	904	
In/Out	In	In	In	In	In	In	In	In	In	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	2	0	2	0	406	0	0	488	6	904	



Seasonal Factor: 1
Trips In
Trips Out
Growth Rate: 1
Years Grown:

15 Min Period lanes	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
3:15-3:30	0	0	0	0	0	0	1	0	114	0	0	145	0	260	1056
3:30-3:45	0	0	0	0	0	0	0	2	112	0	0	154	0	268	796
3:45-4:00	0	0	0	0	0	0	1	0	114	0	0	145	0	260	528
4:00-4:15	0	0	0	0	0	0	0	2	112	0	0	154	0	268	268
														0	0
														0	
														0	
														0	
* The Count values have been doubled to give a full hour															
PM PEAK HOUR IS FROM:	4:00PM TO 5:00PM														
Volumes	0	0	0	0	0	0	2	4	452	0	0	598	0	1056	
Season Factor	0	0	0	0	0	0	2	4	452	0	0	598	0	1056	
Growth	0	0	0	0	0	0	2	4	452	0	0	598	0	1056	
In/Out	In	In	In	In	In	In	In	In	In	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	2	4	452	0	0	598	0	1056	

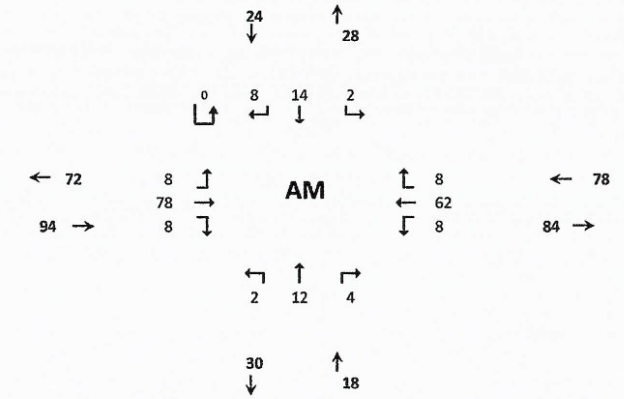


Seasonal Factor: 1
Growth Rate: 1
Trips In:
Trips Out:
Years Grown: 0

TURNING MOVEMENT VOLUME COUNTS

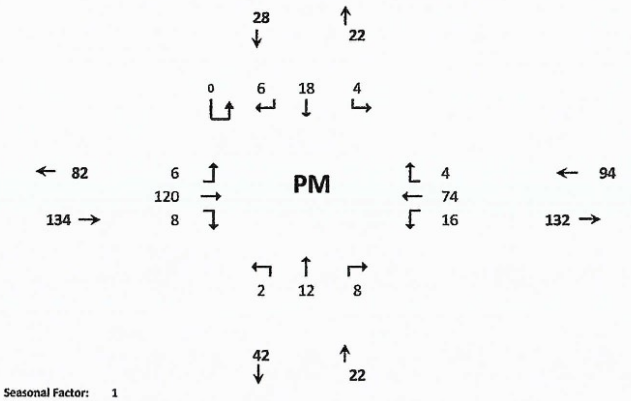
N/S STREET: Amerigo Avenue **E/W STREET:** Osceola Street **CONTROL:** AWSC
FILENAME: The Oaks School
COUNT DATE: 3/24/2022 **DAY:** Thursday **CITY:** Stuart **INTERSECTION:** Amerigo Ave X Osceola St
REPORT DATE: 3/24/2022 **ANALYSIS YEAR:** 2022

15 Min Period	Northbound NBL	NBT	NBR	Southbound SBU	SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
7:00-7:15														0	0
7:15-7:30														0	64
7:30-7:45														0	107
7:45-8:00														0	171
8:00-8:15	0	4	1	0	0	5	4	0	23	4	2	20	1	64	214
8:15-8:30	1	2	1	0	1	2	0	4	16	0	2	11	3	43	
8:30-8:45	0	4	1	0	0	5	4	0	23	4	2	20	1	64	
8:45-9:00	1	2	1	0	1	2	0	4	16	0	2	11	3	43	
* The Count values have been doubled to give a full hour															
AM PEAK HOUR IS FROM:			8:00AM TO 9:00AM												
Volumes	2	12	4	0	2	14	8	8	78	8	8	62	8	214	
Season Factor	2	12	4	0	2	14	8	8	78	8	8	62	8	214	
Growth	2	12	4	0	2	14	8	8	78	8	8	62	8	214	
In/Out	In	In	In	In	In	In	In	In	In	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	2	12	4	0	2	14	8	8	78	8	8	62	8	214	



Seasonal Factor: 1
Trips In
Trips Out
Growth Rate: 1
Years Grown:

15 Min Period lanes	Northbound NBL	NBT	NBR	Southbound SBU	SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
2:45-3:00	0	2	3	0	1	5	3	0	24	3	3	17	1	62	278
3:00-3:15	1	4	1	0	1	4	0	3	36	1	5	20	1	77	216
3:15-3:30	0	2	3	0	1	5	3	0	24	3	3	17	1	62	139
3:30-3:45	1	4	1	0	1	4	0	3	36	1	5	20	1	77	77
														0	0
														0	
														0	
														0	
* The Count values have been doubled to give a full hour															
PM PEAK HOUR IS FROM:			4:00PM TO 5:00PM												
Volumes	2	12	8	0	4	18	6	6	120	8	16	74	4	278	
Season Factor	2	12	8	0	4	18	6	6	120	8	16	74	4	278	
Growth	2	12	8	0	4	18	6	6	120	8	16	74	4	278	
In/Out	In	In	In	In	In	In	In	In	In	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Project	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	2	12	8	0	4	18	6	6	120	8	16	74	4	278	



Seasonal Factor: 1
Growth Rate: 1
Trips In:
Trips Out:
Years Grown: 0

TABLE 7 Generalized **Peak Hour Directional** Volumes for Florida's Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
2	2,230	3,100	3,740	4,080
3	3,280	4,570	5,620	6,130
4	4,310	6,030	7,490	8,170
5	5,390	7,430	9,370	10,220
6	6,380	8,990	11,510	12,760

Urbanized

Lanes	B	C	D	E
2	2,270	3,100	3,890	4,230
3	3,410	4,650	5,780	6,340
4	4,550	6,200	7,680	8,460
5	5,690	7,760	9,520	10,570

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	580	890	1,200	1,610
2	Divided	1,800	2,600	3,280	3,730
3	Divided	2,700	3,900	4,920	5,600

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
https://www.fdot.gov/planning/systems/

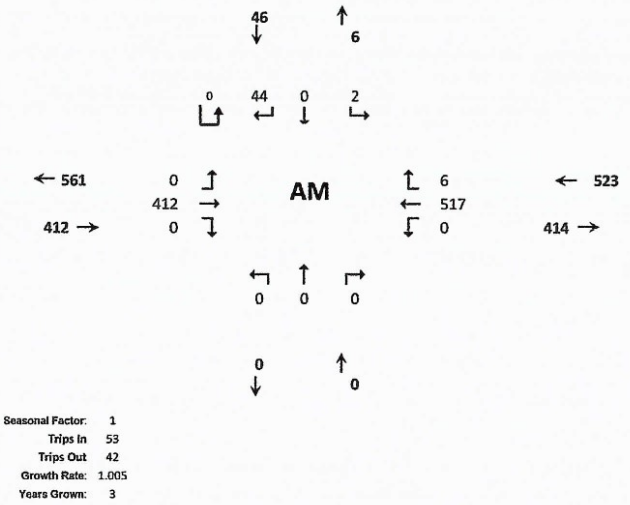
APPENDIX C

DRIVEWAY ANALYSIS

TURNING MOVEMENT VOLUME COUNTS

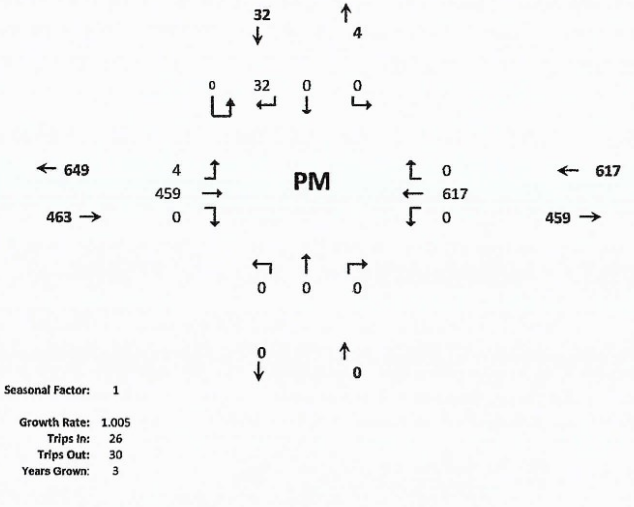
N/S STREET: Project Driveway
E/W STREET: Ocean Boulevard
CONTROL: TWSC
FILENAME: River Place
COUNT DATE: 3/24/2022
DAY: Thursday
CITY: Stuart
INTERSECTION: Project Driveway X Ocean Blvd
REPORT DATE: 3/24/2022
ANALYSIS YEAR: 2025

15 Min Period	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15														0	0
7:15-7:30														0	225
7:30-7:45														0	452
7:45-8:00														0	677
8:00-8:15	0	0	0	0	1	0	0	0	109	0	0	112	3	225	904
8:15-8:30	0	0	0	0	0	0	1	0	94	0	0	132	0	227	
8:30-8:45	0	0	0	0	1	0	0	0	109	0	0	112	3	225	
8:45-9:00	0	0	0	0	0	0	1	0	94	0	0	132	0	227	
* The Count values have been doubled to give a full hour															
AM PEAK HOUR IS FROM:	8:00AM TO 9:00AM														
Volumes	0	0	0	0	2	0	2	0	406	0	0	488	6	904	
Season Factor	0	0	0	0	2	0	2	0	406	0	0	488	6	904	
Growth	0	0	0	0	2	0	2	0	412	0	0	495	6	918	
In/Out	In	In	In	In	In	In	Out	In	In	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	40%	0%		
PROJECT	0	0	0	0	0	0	42	0	0	0	0	21	0	63	
Total	0	0	0	0	2	0	44	0	412	0	0	517	6	981	



Seasonal Factor: 1
Trips In 53
Trips Out 42
Growth Rate: 1.005
Years Grown: 3

15 Min Period lanes	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
3:15-3:30	0	0	0	0	0	0	1	0	114	0	0	145	0	260	1056
3:30-3:45	0	0	0	0	0	0	0	2	112	0	0	154	0	268	796
3:45-4:00	0	0	0	0	0	0	1	0	114	0	0	145	0	260	528
4:00-4:15	0	0	0	0	0	0	0	2	112	0	0	154	0	268	268
														0	0
														0	
														0	
														0	
* The Count values have been doubled to give a full hour															
PM PEAK HOUR IS FROM:	4:00PM TO 5:00PM														
Volumes	0	0	0	0	0	0	2	4	452	0	0	598	0	1056	
Season Factor	0	0	0	0	0	0	2	4	452	0	0	598	0	1056	
Growth	0	0	0	0	0	0	2	4	459	0	0	607	0	1072	
In/Out	In	In	In	In	In	In	Out	In	In	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	40%	0%		
Project	0	0	0	0	0	0	30	0	0	0	0	10	0	40	
Total	0	0	0	0	0	0	32	4	459	0	0	617	0	1112	



Seasonal Factor: 1
Growth Rate: 1.005
Trips In: 26
Trips Out: 30
Years Grown: 3

HCS7 Two-Way Stop-Control Report

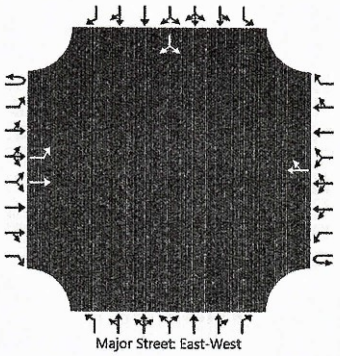
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/24/2022
Analysis Year	2022
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	The Oaks

Site Information

Intersection	Project and Ocean
Jurisdiction	Martin
East/West Street	Ocean Boulevard
North/South Street	Project Driveway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		0	406				488	6						2		2
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													4	
Capacity, c (veh/h)		1064													494	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		8.4													12.3	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	0.0												12.3			
Approach LOS													B			

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HCS7 Two-Way Stop-Control Report

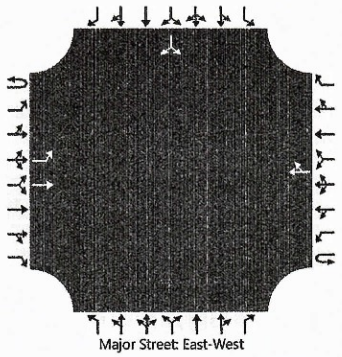
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/23/2022
Analysis Year	2022
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	The Oaks

Site Information

Intersection	Project and Ocean
Jurisdiction	Martin
East/West Street	Ocean Boulevard
North/South Street	Project Driveway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		4	452				598	0						0		2
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Left + Thru								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4													2	
Capacity, c (veh/h)		974													500	
v/c Ratio		0.00													0.00	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		8.7													12.2	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	0.1												12.2			
Approach LOS													B			

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HCS 2010 Two-Way Stop-Control Report

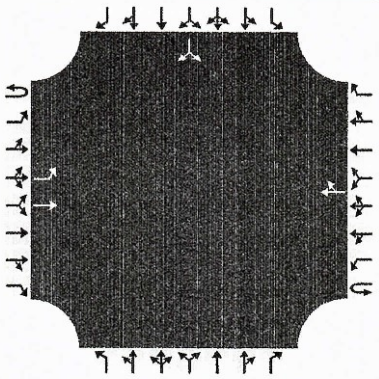
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/24/2022
Analysis Year	2025
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	The Oaks

Site Information

Intersection	Project and Ocean
Jurisdiction	Martin
East/West Street	Ocean Boulevard
North/South Street	Project Driveway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	0	0
Configuration		L	T					TR							LR	
Volume, V (veh/h)		0	412				517	6						2		44
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													46	
Capacity, c (veh/h)		1039													547	
v/c Ratio		0.00													0.08	
95% Queue Length, Q_{95} (veh)		0.0													0.3	
Control Delay (s/veh)		8.5													12.2	
Level of Service, LOS		A													B	
Approach Delay (s/veh)		0.0												12.2		
Approach LOS														B		

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HCS 2010 Two-Way Stop-Control Report

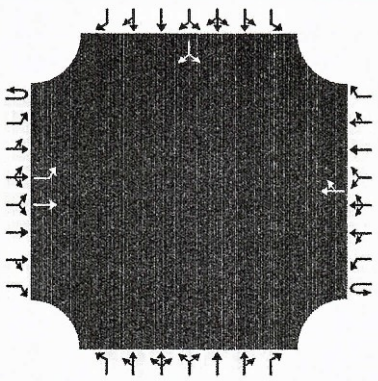
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/23/2022
Analysis Year	2025
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	The Oaks

Site Information

Intersection	Project and Ocean
Jurisdiction	Martin
East/West Street	Ocean Boulevard
North/South Street	Project Driveway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	0	0
Configuration		L	T					TR							LR	
Volume, V (veh/h)		4	459				617	0						0		32
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Left + Thru								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

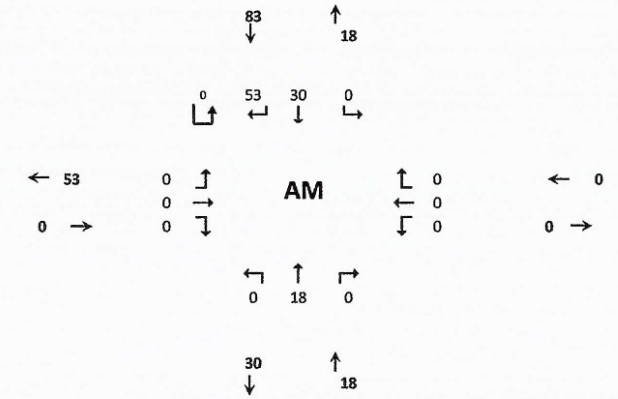
Flow Rate, v (veh/h)		4													32	
Capacity, c (veh/h)		958													488	
v/c Ratio		0.00													0.07	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		8.8													12.9	
Level of Service, LOS		A													B	
Approach Delay (s/veh)		0.1												12.9		
Approach LOS														B		

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TURNING MOVEMENT VOLUME COUNTS

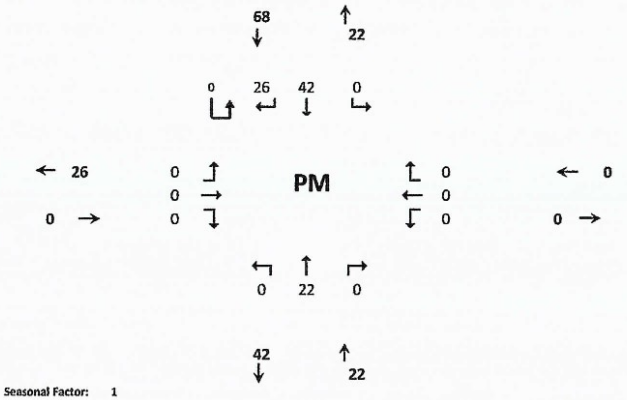
N/S STREET: Amerigo Avenue
E/W STREET: Project Driveway
CONTROL: AWSC
FILENAME: The Oaks School
COUNT DATE: 3/24/2022
DAY: Thursday
CITY: Stuart
INTERSECTION: Amerigo Ave X Project Driveway
REPORT DATE: 3/24/2022
ANALYSIS YEAR: 2025

	Northbound			Southbound				Eastbound			Westbound				
15 Min Period	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM
7:00-7:15														0	0
7:15-7:30														0	0
7:30-7:45														0	0
7:45-8:00														0	0
8:00-8:15														0	0
8:15-8:30														0	
8:30-8:45														0	
8:45-9:00														0	
* The Count values have been doubled to give a full hour															
AM PEAK HOUR IS FROM:	7:00AM TO 8:00AM														
Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Season Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Growth	0	18	0	0	0	30	0	0	0	0	0	0	0	48	
In/Out	In	In	In	In	In	In	In	In	Out	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	53	0	0	0	0	0	0	53	
Total	0	18	0	0	0	30	53	0	0	0	0	0	0	101	



Seasonal Factor: 1
Trips In 53
Trips Out 42
Growth Rate: 1.005
Years Grown: 3

	Northbound			Southbound				Eastbound			Westbound				
15 Min Period lanes	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM
2:45-3:00														0	0
3:00-3:15														0	0
3:15-3:30														0	0
3:30-3:45														0	0
														0	0
														0	
														0	
														0	
* The Count values have been doubled to give a full hour															
PM PEAK HOUR IS FROM:	4:00PM TO 5:00PM														
Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Season Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Growth	0	22	0	0	0	42	0	0	0	0	0	0	0	64	
In/Out	In	In	In	In	In	In	In	In	Out	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%		
Project	0	0	0	0	0	0	26	0	0	0	0	0	0	26	
Total	0	22	0	0	0	42	26	0	0	0	0	0	0	90	



Seasonal Factor: 1
Growth Rate: 1.005
Trips In: 26
Trips Out: 30
Years Grown: 3

HCS 2010 Two-Way Stop-Control Report

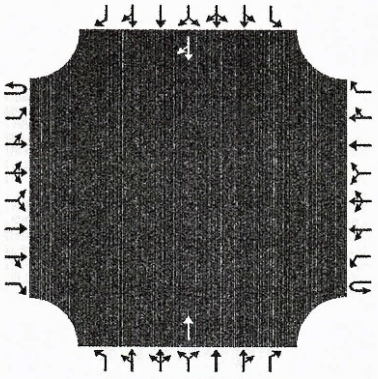
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/24/2022
Analysis Year	2025
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	The Oaks

Site Information

Intersection	Amerigo and Project
Jurisdiction	Martin
East/West Street	Project Driveway
North/South Street	Amerigo Avenue
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	0	0		0	1	0		0	1	0
Configuration											T					TR
Volume, V (veh/h)											18				30	53
Percent Heavy Vehicles (%)											3				3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)											6.5				6.5	0.0
Critical Headway (sec)											6.53				6.53	0.00
Base Follow-Up Headway (sec)											4.0				4.0	0.0
Follow-Up Headway (sec)											4.03				4.03	0.00

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)											18					83
Capacity, c (veh/h)											894					
v/c Ratio											0.02					
95% Queue Length, Q_{95} (veh)											0.1					
Control Delay (s/veh)											9.1					
Level of Service, LOS											A					
Approach Delay (s/veh)										9.1						
Approach LOS										A						

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HCS 2010 Two-Way Stop-Control Report

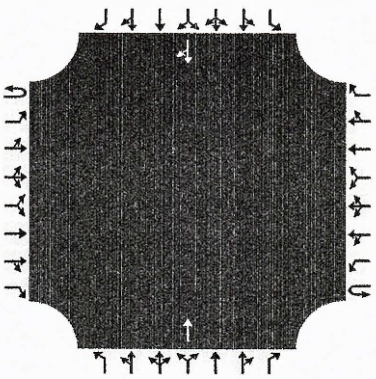
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/24/2022
Analysis Year	2025
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	The Oaks

Site Information

Intersection	Amerigo and Project
Jurisdiction	Martin
East/West Street	Project Driveway
North/South Street	Amerigo Avenue
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	0	0		0	1	0		0	1	0
Configuration											T					TR
Volume, V (veh/h)											22				42	26
Percent Heavy Vehicles (%)											3				3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)											6.5				6.5	0.0
Critical Headway (sec)											6.53				6.53	0.00
Base Follow-Up Headway (sec)											4.0				4.0	0.0
Follow-Up Headway (sec)											4.03				4.03	0.00

Delay, Queue Length, and Level of Service

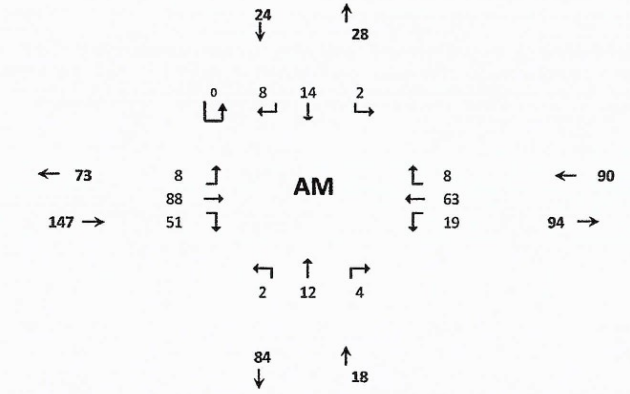
Flow Rate, v (veh/h)											22					68
Capacity, c (veh/h)											894					
v/c Ratio											0.02					
95% Queue Length, Q_{95} (veh)											0.1					
Control Delay (s/veh)											9.1					
Level of Service, LOS											A					
Approach Delay (s/veh)									9.1							
Approach LOS									A							

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TURNING MOVEMENT VOLUME COUNTS

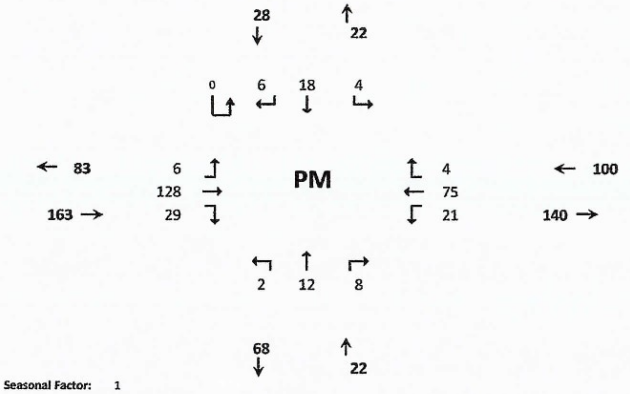
N/S STREET: Amerigo Avenue
E/W STREET: Osceola Street
CONTROL: AWSC
FILENAME: The Oaks School
COUNT DATE: 3/24/2022
DAY: Thursday
CITY: Stuart
INTERSECTION: Amerigo Ave X Osceola St
REPORT DATE: 3/24/2022
ANALYSIS YEAR: 2025

15 Min Period	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15														0	0
7:15-7:30														0	64
7:30-7:45														0	107
7:45-8:00														0	171
8:00-8:15	0	4	1	0	0	5	4	0	23	4	2	20	1	64	214
8:15-8:30	1	2	1	0	1	2	0	4	16	0	2	11	3	43	
8:30-8:45	0	4	1	0	0	5	4	0	23	4	2	20	1	64	
8:45-9:00	1	2	1	0	1	2	0	4	16	0	2	11	3	43	
* The Count values have been doubled to give a full hour															
AM PEAK HOUR IS FROM:	8:00AM TO 9:00AM														
Volumes	2	12	4	0	2	14	8	8	78	8	8	62	8	214	
Season Factor	2	12	4	0	2	14	8	8	78	8	8	62	8	214	
Growth	2	12	4	0	2	14	8	8	79	8	8	63	8	217	
In/Out	In	In	In	In	In	In	In	In	Out	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	20%	80%	20%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	8	42	11	0	0	61	
Total	2	12	4	0	2	14	8	8	88	51	19	63	8	279	



Seasonal Factor: 1
Trips In 53
Trips Out 42
Growth Rate: 1.005
Years Grown: 3

15 Min Period lanes	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
2:45-3:00	0	2	3	0	1	5	3	0	24	3	3	17	1	62	278
3:00-3:15	1	4	1	0	1	4	0	3	36	1	5	20	1	77	216
3:15-3:30	0	2	3	0	1	5	3	0	24	3	3	17	1	62	139
3:30-3:45	1	4	1	0	1	4	0	3	36	1	5	20	1	77	77
														0	0
														0	
														0	
														0	
* The Count values have been doubled to give a full hour															
PM PEAK HOUR IS FROM:	4:00PM TO 5:00PM														
Volumes	2	12	8	0	4	18	6	6	120	8	16	74	4	278	
Season Factor	2	12	8	0	4	18	6	6	120	8	16	74	4	278	
Growth	2	12	8	0	4	18	6	6	122	8	16	75	4	282	
In/Out	In	In	In	In	In	In	In	In	Out	In	In	In	In		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	20%	80%	20%	0%	0%		
Project	0	0	0	0	0	0	0	0	6	21	5	0	0	32	
Total	2	12	8	0	4	18	6	6	128	29	21	75	4	313	



Seasonal Factor: 1
Growth Rate: 1.005
Trips In: 26
Trips Out: 30
Years Grown: 3

HCS7 All-Way Stop Control Report

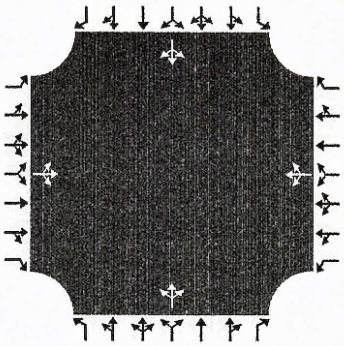
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/24/2022
Analysis Year	2022
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	The Oaks

Site Information

Intersection	Amerigo and Osceola
Jurisdiction	Martin
East/West Street	Osceola Street
North/South Street	Amerigo Avenue
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	8	78	8	8	62	8	2	12	4	2	14	8
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	94			78			18			24		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.084			0.069			0.016			0.021		
Final Departure Headway, hd (s)	4.07			4.07			4.21			4.14		
Final Degree of Utilization, x	0.106			0.088			0.021			0.028		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.07			2.07			2.21			2.14		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	94			78			18			24		
Capacity	885			884			854			870		
95% Queue Length, Q_{95} (veh)	0.4			0.3			0.1			0.1		
Control Delay (s/veh)	7.5			7.5			7.3			7.3		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	7.5			7.5			7.3			7.3		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.5						A					

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HCS7 All-Way Stop Control Report

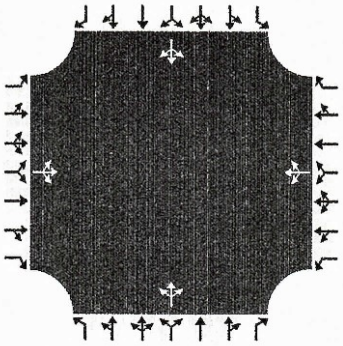
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/23/2022
Analysis Year	2022
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	The Oaks

Site Information

Intersection	Amerigo and Osceola
Jurisdiction	Martin
East/West Street	Osceola Street
North/South Street	Amerigo Avenue
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	6	120	8	16	74	4	2	12	8	4	18	6
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	134			94			22			28		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.119			0.084			0.020			0.025		
Final Departure Headway, hd (s)	4.11			4.19			4.26			4.35		
Final Degree of Utilization, x	0.153			0.109			0.026			0.034		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.11			2.19			2.26			2.35		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	134			94			22			28		
Capacity	875			860			846			828		
95% Queue Length, Q_{95} (veh)	0.5			0.4			0.1			0.1		
Control Delay (s/veh)	7.9			7.7			7.4			7.5		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	7.9			7.7			7.4			7.5		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.7						A					

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HCS 2010 All-Way Stop-Control Summary Report

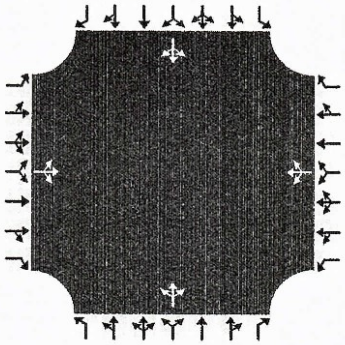
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/24/2022
Analysis Year	2025
Time Analyzed	0.25
Anaylysis Time Period (hrs)	AM Peak Hour
Project Description	The Oaks

Site Information

Intersection	Amerigo and Osceola
Jurisdiction	Martin
East/West Street	Osceola Street
North/South Street	Amerigo Avenue
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	8	88	51	19	63	8	2	12	4	2	14	8
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	147			90			18			24		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.131			0.080			0.016			0.021		
Final Departure Headway, hd (s)	3.92			4.15			4.34			4.27		
Final Degree of Utilization, x	0.160			0.104			0.022			0.028		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	1.92			2.15			2.34			2.27		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	147			90			18			24		
Capacity	919			867			829			844		
95% Queue Length, Q_{95} (veh)	0.6			0.3			0.1			0.1		
Control Delay (s/veh)	7.7			7.6			7.4			7.4		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	7.7			7.6			7.4			7.4		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.6						A					

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HCS 2010 All-Way Stop-Control Summary Report

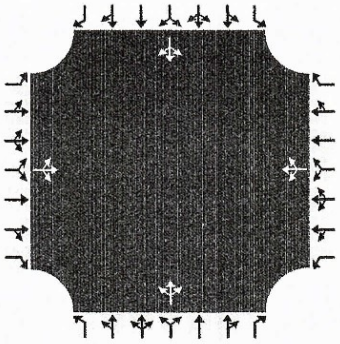
General Information

Analyst	Kyle Scherer
Agency/Co.	OREP
Date Performed	3/23/2022
Analysis Year	2025
Time Analyzed	0.25
Anaylysis Time Period (hrs)	PM Peak Hour
Project Description	The Oaks

Site Information

Intersection	Amerigo and Osceola
Jurisdiction	Martin
East/West Street	Osceola Street
North/South Street	Amerigo Avenue
Peak Hour Factor	1.00

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	6	128	29	21	75	4	2	12	8	4	18	6
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	163			100			22			28		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.145			0.089			0.020			0.025		
Final Departure Headway, hd (s)	4.05			4.22			4.33			4.42		
Final Degree of Utilization, x	0.183			0.117			0.026			0.034		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.05			2.22			2.33			2.42		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	163			100			22			28		
Capacity	889			852			832			815		
95% Queue Length, Q_{95} (veh)	0.7			0.4			0.1			0.1		
Control Delay (s/veh)	8.0			7.8			7.4			7.6		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	8.0			7.8			7.4			7.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.8						A					

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CITY OF STUART, FLORIDA
CITY COMMISSION
STAFF REPORT

MEETING DATE: April 14, 2022 Local Planning Agency

PREPARED BY: Erin Wohlitka, Senior Planner

TITLE OF ITEM: RESOLUTION NO. 44-2022 A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, GRANTING CONDITIONAL USE APPROVAL TO ALLOW A SCHOOL, PRIVATE, PAROCHIAL, OR TECHNICAL, FOR THE OAKS CLASSICAL CHRISTIAN ACADEMY LOCATED AT ST. MARY'S EPISCOPAL CHURCH. THE SUBJECT PROPERTY IS APPROXIMATELY 2.46-ACRES AND CONSISTS OF TWO PARCELS OPPOSITE ONE ANOTHER GENERALLY LOCATED NORTH OF THE INTERSECTION AT SE OCEAN BLVD AND SE AMERIGO AVENUE; PROVIDING FOR CONDITIONS; PROVIDING AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

SUMMARY EXPLANATION/BACKGROUND INFORMATION:

On August 23, 2021, the City Commission of the City of Stuart adopted Resolution 75-2021, allowing The Oaks Classical Christian Academy to operate as a private parochial school at St. Mary's Episcopal Church. A condition of approval within Exhibit 'C' of the resolution set the maximum number of students to 25 children for enrollment in the school at this location.

On February 22, 2022, the Oaks Classical Christian Academy applied for a Major Conditional Use to increase the number of students permitted at The Oaks Classical Christian Academy from 25 to 90 students.

St. Mary's Church is currently zoned Residential Multi-Family/Office (R-3) and has a Future Land Use Designation of Office-Residential. The subject property is located at 623 SE Ocean Boulevard and is within the jurisdictional boundaries of the City of Stuart.

Pursuant to Section 2.02.02, *Table 2: Land Uses*, of the City's Land Development Code, Schools (Private, Parochial, or Technical) at properties less than five (5) acres in size are to be approved as Conditional Uses within the R-3 zoning district.

The subject buildings classified as St. Mary's Episcopal Church were built in 1947 and 1965, respectively. Pursuant to and at the time of the recordation of Resolution 46-89, passed by the City Commission on October 23, 1989, a pre-school had previously been operating for 25 years at the subject property.

The Applicants have stated that The Oaks Classical Christian Academy is a small, private school that began in concept in 2020 by two local mothers who wanted to home educate their children but also understood the need for academic support from an additional teacher, social engagement, and a support community for both students and parents. As such, the Oaks Classical Christian Academy was incorporated in 2021 as a hybrid learning school integrating both homeschooling and in-person learning for two (2) days a week. The Oaks Classical Christian Academy has been operating out of St. Mary's Episcopal Church this past school year subject to the approval granted via Resolution 75-2021.

With the success of its first year along with the addition of younger siblings from current school families, the Applicant has stated there is a demand for additional student capacity. The church property has five classrooms available for use by the school. Currently, the school utilizes three of these classrooms with approximately 7-9 students in each classroom. At full capacity, the five classrooms with 18 students in each room could support a total of 90 students. The Applicant does not anticipate that they will fill every classroom over the next school year; however, they are seeking this approval so that they are able to continue to grow until they reach the maximum number of students that the existing space can accommodate. They would like to offer enrollment to new students, continue to offer student scholarships through the state, and allow long-term staff and student body visioning. The school will utilize the existing classrooms on site and is not proposing any physical modifications within this application.

Drop Off / Pick Up Operations:

The resolution includes an exhibit that details the route of drop off/pick up operations. The vehicles will enter the parking lot from SE Osceola Street and turn south on Amerigo Ave that bifurcates the subject property, taking a left-hand turn into the parking lot. All of the students will be dropped off at Smith Hall in the morning for assembly and will be picked up from the Youth Center in the afternoon. The carpool line will exit onto SE Ocean Boulevard. Drop Off time will be at 8:15am and Pick Up time will be at 3:00pm. The Applicant states that it typically takes 10-15 minutes for drop off and pick up.

Parking:

The church property includes 86 existing parking spaces. Pursuant to the City's parking code, the church requires 51 parking spaces and the office building requires 22 spaces;

therefore, a surplus of 13 spaces is left for the use of The Oaks Classical Christian Academy. Based on the City's Code, a total of 13 parking spaces would be required for the school to utilize a total of 5 classrooms with 8 employees. Therefore, the proposal meets the City's requirements for provision of parking.

Traffic:

The City's traffic consultant has reviewed the submitted traffic analysis, prepared by O'Rourke Engineering & Planning, and determined it meet's the City's requirements. The project will generate 95 AM peak hour trips and 56 PM peak hour trips. The traffic analysis concludes that these trips will not cause levels of service to fall below acceptable levels in the future.

CONFORMANCE WITH SEC.11.01.11 CONDITIONAL USE CRITERIA

City staff has reviewed this Application and has determined that the subject Application has proved to be in substantial compliance with the Conditional Use Criteria set forth in Section 11.01.11 of the City's Land Development Code. The Applicant has demonstrated that there will be no negative impacts form the proposed Conditional Use on the subject property. Furthermore, City staff recommends approval due to the subject property's previous use as a pre-school and based on the limited days of property utilization and available number of parking spaces to accommodate the use.

RECOMMENDATION:

Approve a Conditional Use to allow the Oaks Classical Christian Academy at St. Mary's Episcopal School with conditions set forth in Resolution 44-2022.

SEE ATTACHED DOCUMENTS

- Resolution No. 44-2022 with Exhibits

City of Stuart
121 SW Flagler Ave.
Stuart, FL 34994
development@ci.stuart.fl.us
(772) 288-5326

Received by: _____
Reviewed by: EW
Approved by: _____

RECEIVED
FEB 23 2022
By: .....

Application for Conditional Use Permit

Project ID# Z22020005
(Staff Entry)

Pre-App Conference Date:	Application Date:

SITE INFORMATION

Project Name: The Oaks ClassiConditional Use Permit	Parcel ID#: 04-38-41-00301500010-9
Site Address: 623 SE Ocean Blvd. Stuart, FL 34994	
Subdivision:	Lot(s):
Site Acreage: 3.43	Flood Zone/Base Flood Elevation: N/A
Current Zoning District / CRA Subdistrict (if applicable): R3 - Multi-family / Office	
Current Comprehensive Plan Future Land Use Designation:	
Existing Land Use: Office - Residential	Proposed Land Use: Office - Residential
Proposed Square Footage (if applicable):	Proposed Density (if applicable):

PETITIONER INFORMATION

Property Owner: St. Mary's Episcopal Church	Phone Number / Email Address: ~~772~~ 772-287-3244
Property Owner's Mailing Address: 623 SE Ocean Blvd.Stuart, FL 34994	
Applicant (if not Owner): The Oaks	Phone Number / Email Address: 772-678-0118
Applicant's Mailing Address: 623 SE Ocean Blvd. Stuart, FL 34994	
Agent/Contact Person: Katie Crews	Phone Number / Email Address: 772-678-0118
Agent's Mailing Address: 2101 SW Racquet Club Dr. Palm City, FL 34990	
Architect:	Engineer:
Planner: Kate DeWitt	Landscape Architect:

Application Requirements

Fee: $1,598.00 – Conditional Use Permit *(this does not include fees that may be charged as a result of application reviews by the City's consultants or any required recording fees.)*

Submittal Requirements: A completed application form, the payment of fees, one (1) copy of all documents on a PDF formatted disc electronically signed and sealed, and a site plan. (Note: A concept plan may, at the discretion of the applicant, be submitted instead of a site plan. However, in doing so the applicant acknowledges that a site plan will need to be submitted for City Commission approval prior to making application for a development permit). The data requirements for a site plan and a concept plan are available at the Development Department. ***Note:*** An application for a Conditional Use Permit may not be filed if the City Commission has denied an application for a Conditional Use Permit for the subject property within the previous two years.

The applicant has the burden of proof to demonstrate to the City Commission that the following standards are met:

1. The proposed use is not contrary to the established land uses in the immediate area;
2. The proposed use would not significantly depart from the densities or intensities of use in the surrounding area and thereby increase or overtax the load on public facilities such as schools, utilities, and streets and other public infrastructure.
3. The proposed use will not be contrary to the proposed land use plan and will not have an adverse effect on the goals, policies and objectives of the Comprehensive Plan;
4. The existing district boundaries are illogically drawn in relation to existing conditions on the property proposed for change;
5. The proposed use will not create or excessively increase traffic congestion or otherwise affect Public Safety;
6. The proposed use will not create drainage or a storm water quality problem;
7. The proposed use will not significantly reduce light or air to adjacent areas;
8. The proposed use is less burdensome on neighboring properties and on public infrastructure than uses permitted by right in the district;
9. The proposed use is not out of scale with the uses permitted by right in the district and with the existing uses in the neighborhood; and
10. There are no other adequate sites for the proposed use in districts in which the proposed use is permitted by right within the City.

Approving Authority: The Development Director is required to prepare a staff report and recommendation concerning this application for the City Commission public hearing.

Justification: Please provide justification supporting the request for a Conditional Use Permit *(include additional pages if needed)*:

See attached document (4 pages)
+ 1 pg. "traffic circulation plan."
+ Traffic Analysis

(over)

Statement of Ownership and Designation of Authorized Agent

(Please Print or Type)

Before me, the undersigned authority, personally appeared Mary Eugenia DuPell as representative

Who, being by me first duly sworn, on oath deposed and says:

1. That he/she is the fee simple title owner of the property described in the attached Legal Description.
2. That he/she is requesting approval of a conditional use permit in the City of Stuart, FL.
3. That he/she has appointed Kathryn Crews to act as an authorized agent on his/her behalf to accomplish the above project.

Name of Owner: Mary Eugenia DuPell

Mary Eugenia DuPell
Signature of Owner:

Rector's Warden
By: Name/Title

460 SE Krueger Creek Pl
Street Address

Stuart FL 34994
City, State, Zip Code

P.O. Box

City, State, Zip Code

315-491-0413
Telephone Number

Fax Number

egdupell@gmail.com
Email Address:

STATE OF FLORIDA, COUNTY OF Martin County

Sworn and subscribed before me by means of [X] physical presence or [ ] online notarization, this

28th day of January, 2022 By Mary Eugenia Dupell

Personally Known OR Produced Identification
Type of Identification Produced:

Ashley Guzi
Notary Public

ASHLEY N. GUZI
MY COMMISSION # HH 014125
EXPIRES: June 24, 2024
Bonded Thru Notary Public Underwriters

My Commission expires:
6-24-24

Financial Responsibility Form

(Please Print or Type)

The Undersigned, as the Property Owner, Lessee, Contract Purchaser, or Applicant (circle one), acknowledges responsibility for all City expenses associated with the referenced application (s) including time spent by the City's consultants and further acknowledges that payment of consultant fees will be made prior to the receipt of the consultant comments.

Name: Kathryn Crews	City/State/Zip Code: Palm City, FL 34990
Title: Head of School	Telephone Number: 772-678-0118
Company: The Oaks	Facsimile Number:
Company Address: Mailing: 2101 SW Racquet Club Dr.	Email Address (optional): katiecrews@theoaksflorida.com

I hereby certify that all information contained herein is true and correct.

1. Signed this 28th day of January, 2022

Kathryn Crews

Signature of Property Owner, Lessee, Contract Purchaser or Applicant (circle one)

ST. MARY'S
EPISCOPAL CHURCH

March 25, 2022

City of Stuart
121 SW Flagler Avenue
Stuart, FL 34994

Dear Commissioners,

I write with my ongoing support of The Oaks School. It is a wonderful organization filled with wonderful God loving people.

The Oaks has been a wonderful addition to our campus, and greatly supports the overall mission of St Mary's, and is adding value to our community.

I would encourage your continued support of The Oaks school.

Sincerely,

Tom Winter
Director of Operations
772-214-8655

From: Kate DeWitt
To: Wohlitka, Erin
Subject: Fwd: TRAFFIC FLOW
Date: Friday, March 25, 2022 4:17:30 PM

This message has originated from an **[EXTERNAL EMAIL ADDRESS]**. Please use proper judgment and caution when opening attachments, clicking links, or responding to this email. If it shows as being from someone within the City, please contact the City's Technology Services personnel.

Hi Erin!

Email from the Park Pharmacy across the street noting that they haven't been impacted by the school traffic.

Thank you!

Kate DeWitt

Sent from my iPhone

Begin forwarded message:

> **From:** Kathryn Crews <katiecrews@theoaksflorida.com>
> **Date:** March 25, 2022 at 10:17:09 AM EDT
> **To:** krose.dewitt@gmail.com
> **Subject: Fwd: TRAFFIC FLOW**
>
> ---------- Forwarded message ---------
> From: **rick parkrx.net** <rick@parkrx.net>
> Date: Thu, Mar 24, 2022 at 12:33 PM
> Subject: TRAFFIC FLOW
> To: KATIECREWS@THEOAKSFLORIDA.COM
> <KATIECREWS@theoaksflorida.com>
>
> TO WHOM IT MAY CONCERN:
> MY NAME IS EDWARD JUSTICE AND I AM PART OWNER OF PARK PHARMACY AT 700 SE OCEAN BLVD, STUART FLORIA, 34994. I AM WRITING YOU TO INFORM YOU THAT I HAVE NOT SEEN PRECEPTABLE INCREASE IN TRAFFIC WITH REGARD

TO THE "THE OAKS FLORIDA" BUSINESS. I DON'T EXPECT AN INCREASE IN SAID BUSINESS CAUSING A TRAFFIC PROBLEM WITH AN INCREASE IN BUSINESS. PLEASE CONTACT ME IF YOU HAVE ANY FURTHER QUESTIONS.

EDWARD JUSTICE, RPh

772-287-3201
EDDIE@PARKRX.NET
--
Katie Crews
Head of School
The Oaks Classical Christian Academy
772-678-0118
www.theoaksflorida.com



BEFORE THE CITY COMMISSION
CITY OF STUART, FLORIDA

RESOLUTION NUMBER 46-89

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, COMMENDING ST. MARY'S EPISCOPAL PRE-SCHOOL FOR ITS WALKING PROGRAM.

WHEREAS, St. Mary's Episcopal Pre-School is in its 25th year of service to youngsters, aged three and four, in the Stuart area; and

WHEREAS, during the past twenty-five years, pre-schoolers at St. Mary's have taken many supervised walking field trips throughout the city which contributed greatly to the children's health, their learning to use safely the sidewalks and crosswalks of the City, their familiarity with the community and their recreation through park trips and Easter egg hunts.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AS FOLLOWS:

THE CITY COMMISSION BEING CONCERNED WITH THE HEALTH, SAFETY AND WELL BEING OF ITS PRE-SCHOOL CITIZENS HEREBY COMMENDS THE PROGRAMS OF ST. MARY'S EPISCOPAL PRE-SCHOOL AND WISHES FOR THE SCHOOL AND ITS STUDENTS CONTINUED HEALTH AND ENJOYMENT IN WALKING, LEARNING AND JUST HAVING FUN.

PASSED AND ADOPTED this 23rd day of October, 1989.

ATTEST:

Eileen G. Reeder
EILEEN G. REEDER
CITY CLERK

Joan Jefferson
JOAN JEFFERSON
MAYOR

City of Stuart
Development Department
121 SW Flagler Avenue
Stuart, FL 34994
Ph. 772-288-5300
Fax 772-288-5388

RECEIVED
MAR 29 2022
By: DMP

AFFIDAVIT ATTESTING TO NOTIFICATION

Kathryn Crews being first duly sworn, depose(s) and say(s):

That (I am / we are) the owner(s) or petitioner(s) of the following described property which constitutes the location for which notification is required:

623 SE OCEAN BLVD, STUART, FL 34994

That a copy of the notice was sent by regular U.S. Mail on (3/28/22) to the property owners within 300 feet of the subject property.

That a list of the property owners and their addresses is on file with the City of Stuart; and

That a photograph showing the placement of the notification sign be made a part of this Affidavit.

Kathryn Crews
SIGNED (PROPERTY OWNER / AUTHORIZED AGENT)

Kathryn Crews
SIGNED (PROPERTY OWNER / AUTHORIZED AGENT)

STATE OF FLORIDA, COUNTY OF Martin
Sworn and subscribed before me by means of ✓ physical presence or ___ online notarization, this 29 day of March, 2022 By Kathryn Crews.
Personally Known OR Produced Identification

DL
Type of Identification Produced:

Notary Public, State of FL My Commission HH062965 expires: 11-12-2024
(Notary Seal)

Notary Public State of Florida
Maria Mccoy
My Commission HH 062965
Expires 11/12/2024

Maria 11/12/22


NOTICE OF PUBLIC HEARING
Conditional Use
3.43 Acres

NOTICE OF PUBLIC HEARING

100% MANAGEMENT LLC
633 SE 5TH ST
STUART FL 34994

C DAX MAGGIORE DC PA
5389 SW HONEYSUCKLE CT
PALM CITY FL 34990

GRAFF MARGOT
630 SE OCEAN BLVD #C-5
STUART FL 34994

CITY OF STUART
121 SW FLAGLER AVE
STUART FL 34994

HILDRETH BRYAN K HILDRETH SARAH L
134 FRANKLIN AVE
WESTERVILLE OH 43081

JUSTICE EDWARD A JUSTICE CHARLES E
700 E OCEAN BLVD
STUART FL 34994

DRIFTWOOD REAL ESTATE LLC
142 S SEWALLS POINT RD
STUART FL 34996

604 OCEAN HOLDINGS LLC
PO BOX 1273
STUART FL 34995

DUGGAN MARY
1313 SW SEAGULL WAY
PALM CITY FL 34990

KUBICK JOHN A
198-18 26TH AVE
FLUSHING NY 11358

618 PROFESSIONAL BUILDING
CONDOMINIUM ASSOCIATION INC
618 SE OCEAN BLVD
STUART FL 34994

ENVIRO INVESTMENT INC
PO BOX 1197
STUART FL 34995

ADAMS LISA R JOHNSTON WESLEY JOEL
630 SE OCEAN BLVD #A-5
STUART FL 34994

ALETHEIA LLC
2100 SE OCEAN BLVD #300
STUART FL 34996

FIRST CHURCH CHRIST SCIENTIST
515 SE OCEAN BLVD
STUART FL 34994-2226

LGTG PROPERTIES LLC GIANINO PETER T
PO BOX 1814
STUART FL 34995

GERAL RICHARD D
189 NE BALSAM WAY
JENSEN BEACH FL 34957

LORD ANNE WILLIAMS
1375 SE SAINT LUCIE BLVD
STUART FL 34996

GLENRIDGE RETIREMENT TRUST HOLDER
GLEN M TTEE
7225 NAVAJO RD UNIT 237
SAN DIEGO CA 92119

LYDON KARI
5001 SE BURNING TREE CIR
STUART FL 34997

MAMA LLC
709 SE 5TH ST
STUART FL 34994

ROYALE OAK TOWERS ASSOCIATION INC
630 SE OCEAN BLVD
STUART FL 34994

MARTIN MEMORIAL MEDICAL CENTER INC
1950 RICHMOND RD TR 103
LYNDHURST OH 44124

SCHOPPE JOHN J
77 S RIVER RD
STUART FL 34996

SHERER CHRISTOPHER C
1346 NW PINE RIDGE TRL
STUART FL 34994

STU710 LLC
28 COUNTRY RD
VILLAGE OF GOLF FL 33436

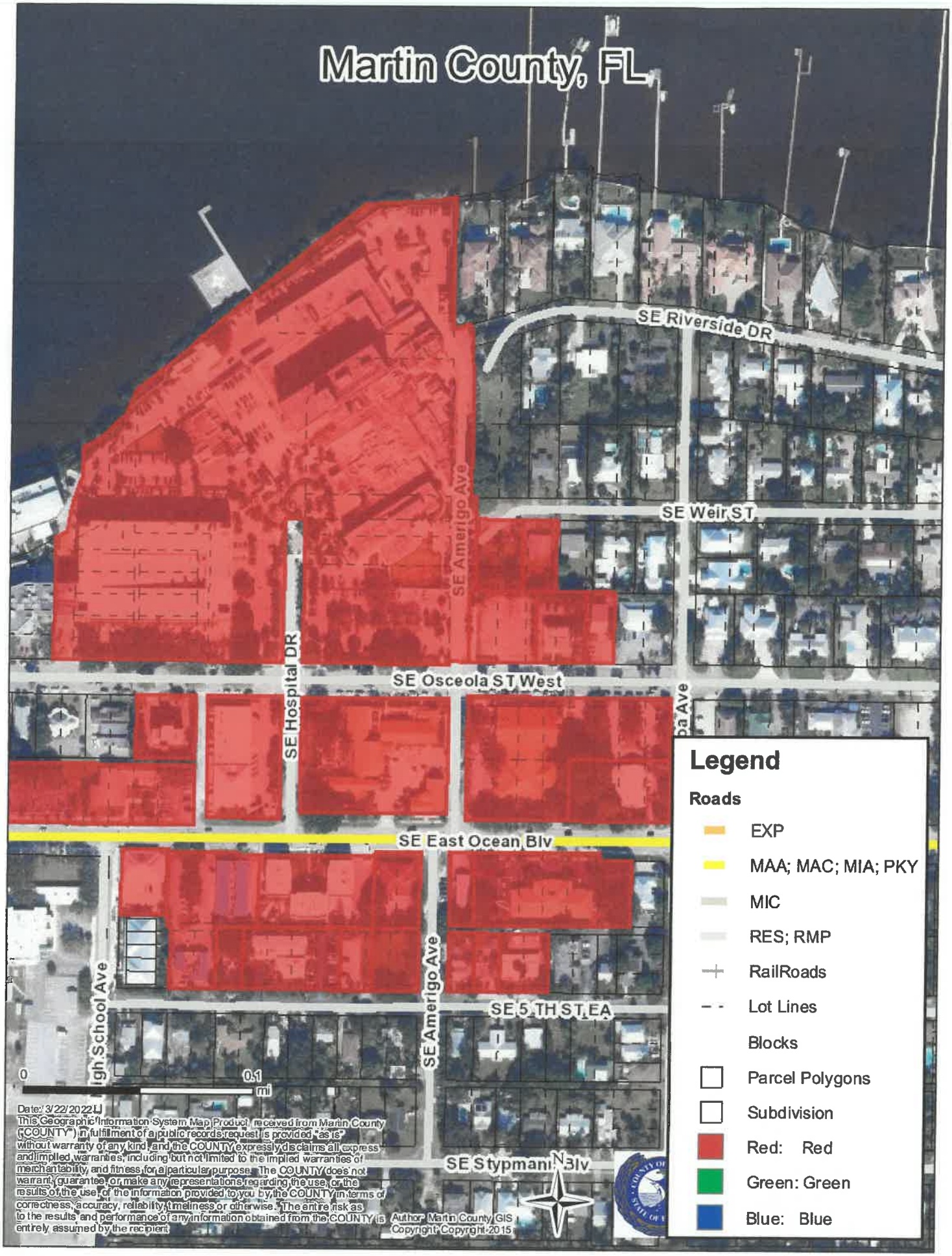
WAX UNIQUE INC
618 SE OCEAN BLVD #4
STUART FL 34994

MOORMAN KATHERINE W
630 SE OCEAN BLVD #B4
STUART FL 34994

WHIPKEY NEIL H & BONNIE J
709 WEIR AVE
STUART FL 34994

ROSECAN REALTY LTD
901 N FLAGLER DR
WEST PALM BEACH FL 33401

WOMAN'S CLUB OF STUART
729 E OCEAN BLVD
STUART FL 34994-2331


Martin County, FL
SE Riverside DR
SE Weir ST
SE Amerigo Ave
SE Hospital DR
SE Osceola ST West
SE East Ocean Blv
SE 5 TH ST EA
SE Stypmann Blv
0
0.1
mi
Legend
Roads
EXP
MAA; MAC; MIA; PKY
MIC
RES; RMP
RailRoads
Lot Lines
Blocks
Parcel Polygons
Subdivision
Red: Red
Green: Green
Blue: Blue
Date: 3/22/2022
This Geographic Information System Map Product received from Martin County ("COUNTY") in fulfillment of a public records request is provided "as is" without warranty of any kind, and the COUNTY expressly disclaims all express and implied warranties, including but not limited to the implied warranties of merchantability, and fitness for a particular purpose. The COUNTY does not warrant, guarantee, or make any representations regarding the use, or the results of the use, of the information provided to you by the COUNTY in terms of correctness, accuracy, reliability, timeliness or otherwise. The entire risk as to the results and performance of any information obtained from the COUNTY is entirely assumed by the recipient.
Author: Martin County GIS
Copyright: Copyright 2015

CITY OF STUART, FLORIDA
AGENDA ITEM REQUEST
Local Planning Agency

Meeting Date: 4/14/2022 **Prepared by:** Erin Wohlitka

Title of Item:
Ordinance 2487-2022: Request to consider a small-scale comprehensive plan amendment from Commercial to Multi-Family Residential, a rezoning from Commercial Planned Unit Development (CPUD) to Residential Planned Unit Development (RPUD), and site plan approval to allow 60 townhouse units on 4.88 acres of land for the Sailfish Cay RPUD. The subject property is located at 751 SE Central Parkway.

Summary Explanation/Background Information on Agenda Request:
The intent of this application is to request a rezoning from a Commercial Planned Unit Development (CPUD) to a Residential Planned Unit Development (RPUD) and a Small-Scale Future Land Use Amendment from Commercial (C) to Multi-Family Residential (MF-RES) to allow the construction of 60 multifamily townhouse units on 4.88 acres of land. The subject property is located at 751 SE Central Parkway. See attached staff report for additional information.

Funding Source:
N/A

Recommended Action:
Staff recommends approval of Ordinance 2487-2022 subject to the conditions of approval located therein.

ATTACHMENTS:
1. A.1 Ordinance 2487-2022
2. A.2 Ordinance 2487-2022 'Exhibit D'
3. B. Staff Report
4. C. Future Land Use Amendment Application
5. C. Rezoning Application
6. D. Ordinance 1174-89
7. D. Ordinance 1293-93
8. D. Ordinance 2106-07
9. D. Applicant Project Narrative
10. D. MCSB School Capacity Determination
11. D. Staff Review Comments 03.21.2022
12. E.1 Public Notice Affidavit

BEFORE THE CITY COMMISSION

CITY OF STUART, FLORIDA

ORDINANCE NUMBER 2487-2022

* * * * *

AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AMENDING THE FUTURE LAND USE MAP OF THE CITY'S COMPREHENSIVE PLAN THEREBY CHANGING THE FUTURE LAND USE DESIGNATION FROM "COMMERCIAL" TO "MULTI-FAMILY RESIDENTIAL" FOR A 4.88-ACRE PARCEL, LOCATED AT 751 SE CENTRAL PARKWAY, SAID LAND BEING MORE FULLY DESCRIBED IN EXHIBIT "A" ATTACHED; AND FURTHER PROVIDING THAT SAID LANDS SHALL CONCURRENTLY BE REZONED FROM COMMERCIAL PLANNED UNIT DEVELOPMENT "CPUD" TO RESIDENTIAL PLANNED UNIT DEVELOPMENT "RPUD" ON THE CITY'S OFFICIAL ZONING MAP; ESTABLISHING THE SAILFISH CAY RPUD CONSISTING OF SIXTY (60) TOWNHOUSE UNITS; APPROVING A MASTER SITE PLAN; PROVIDING FOR DEVELOPMENT CONDITIONS AND A TIMETABLE FOR DEVELOPMENT, DECLARING THE PLAN TO BE CONSISTENT WITH THE CITY'S COMPREHENSIVE PLAN; PROVIDING DIRECTIONS TO THE CITY CLERK; PROVIDING FOR REPEAL OF ALL ORDINANCES IN CONFLICT; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE, AND FOR OTHER PURPOSES.

* * * * *

WHEREAS, on December 11, 1989, the City of Stuart City Commission adopted Ordinance Number 1174-89, adopting a comprehensive growth management plan as mandated by the local government comprehensive planning and land development regulation act, Chapter 163,

Part II, Florida State Statutes, also known as the City of Stuart Comprehensive Plan, that designated this future land use of this property as Multi-Family Residential (MF-RES); and

WHEREAS, on June 14, 1993, the City of Stuart City Commission adopted Ordinance 1293-93, approving a land use amendment from Multi-Family Residential (MF-RES) to Institutional (I) for the Abundant Life Ministries Church; and

WHEREAS, on May 14, 2007, the City of Stuart City Commission adopted Ordinance 2106-07, approving a land use amendment from Industrial (I) to Commercial (C) and a rezoning from Residential-3 (R-3) to Commercial Planned Unit Development (CPUD) to allow for a professional and medical office center; and

WHEREAS, on November 5, 2021, an application was submitted to the city for a Small-Scale Future Land Use Amendment from Commercial (C) to Multi-Family Residential (MF-RES) and concurrent Rezoning from Commercial Planned Unit Development (CPUD) to Residential Planned Unit Development (RPUD); and

WHEREAS, the Local Planning Agency board held a property noticed hearing at a regularly scheduled meeting to consider the applicant's request; and

WHEREAS, the City Commission held a properly noticed hearing at a regularly scheduled City Commission to consider the application by Johnston Group and 751 Central Parkway, LLC (applicant) representing Cypress Holding, LLC (property owner) for a 4.88-acre parcel of land; and

WHEREAS, the City of Stuart has determined the need to change the Future Land Use and Land Development Zoning District for said lands; and

WHEREAS, the City Commission, has considered the Petitioner's voluntary request for land use and zoning designations, and has also considered the recommendation of City staff; and

WHEREAS, the Applicant has committed to the City that its development will comply with all development codes, plans, standards and conditions approved by the City Commission; and that it will bind its successors in title to any such commitments made upon approval of the Future Land Use Amendment and Rezoning; and

WHEREAS, at the hearing the applicant showed by substantial competent evidence that the application is consistent with the Stuart Comprehensive Plan, and the Land Development Code of the City, and with the procedural requirements of law; and

WHEREAS, the foregoing recitals are true and adopted as findings of fact and conclusions of law.

WHEREAS, the property is legally described in **"Exhibit A"** of this ordinance. A map depicting the property is attached hereto as **Exhibit "B"** and made a part hereof by reference; and development conditions including a timetable for construction attached hereto as **Exhibit "C";**

NOW THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA THAT:

SECTION 1: The following new documents are on file as public records of the City, at the office of the City Clerk in City Hall, and attached hereto as **Exhibit "D"**, hereinafter the "Development Documents", shall be deemed a part of the development conditions, and shall supplement any earlier approvals:

a. **Site Plan, Sheet SP-1, prepared by *Litterick Landscape Architecture*, dated March 24, 2022.**
b. **Site Details, Sheet SP-2, prepared by *Litterick Landscape Architecture*, dated March 25, 2022.**
c. **Fire Access Exhibit, Sheet SP-3, prepared by *Litterick Landscape Architecture*, dated February 21, 2022.**
d. **Boundary & Topographic Survey, Sheets 1-3 of 3, prepared by *Engineering Design & Construction, Inc.*, dated February 18, 2022.**

e. Landscape Plans, Sheets LP-1 through LP-4, prepared by *Litterick Landscape Architecture,* dated October 20, 2021.

f. Tree Disposition Plan, Sheets TD-1 and TD-2, prepared by *Litterick Landscape Architecture,* prepared February 21, 2022.

g. Sign Plan, Sheet MS-1, prepared by *Camilo Lopez,* dated March 30, 2022.

h. Pool Cabana, Sheet A-1, prepared by *Specialty Engineering Consultants, Inc.*, dated February 21, 2022.

i. Elevations, 4-Unit Building I, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.

j. Elevations, 4-Unit Building Type II, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.

k. Elevations, 5-Unit Building, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.

l. Elevations, 6-Unit Building, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.

m. Floor Plans, 7-Unit Building, Sheet A-1, prepared by *Specialty Engineering Consultants, Inc.*, dated February 21, 2022.

n. Elevations, 7-Unit Building, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated February 21, 2022.

o. Unit Plans, Plan A, Plan B, and Plan C, prepared by Dewey A. LeBlanc, dated November 5, 2021.

p. Preliminary Engineering Plan, Sheet 1 of 2, by *Engineering Design & Construction, Inc.*, dated March 30, 2022.

q. Preliminary Engineering Plan, Sheet 2 of 2, by *Engineering Design & Construction, Inc.*, dated February 21, 2022.

r. Lift Station Site Plan, prepared by *City of Stuart Utilities & Engineering Department*, Dated October 2021.

s. Photometric Plan, 1 page, dated January 3, 2022.

t. Lift Station Report, 10 pages, prepared by *Engineering Design & Construction, Inc.,* dated February 2022.

u. Long-Range Traffic Analysis, 4 pages, prepared by *O'Rourke Engineering & Planning*, dated December 10, 2021.

v. **Traffic Analysis, 28 pages, prepared by *O'Rourke Engineering & Planning*, dated February 21, 2022.**
w. **Environmental Assessment, 13 pages, prepared by *Engineering Design & Construction, Inc.,* dated March 22, 2022.**
x. **Drainage Calculations & Surface Water Management Report, 149 pages, prepared by *Engineering Design & Construction, Inc.,* dated March 2022.**

SECTION 2: The Future Land Use designation in the City's Comprehensive Land Use Plan shall be established as "Multi-Family Residential (MF-RES)". The Land Development (Zoning) District designation on the City of Stuart Official Zoning Map shall be established as "Residential Planned Unit Development (RPUD)" amended by this ordinance to allow for 60 townhome units.

SECTION 3: This ordinance becomes effective upon adoption.

SECTION 4: Except as otherwise provided herein, no development permits, site permits, or building permits shall be issued by the City except in compliance with the City's Land Development Code.

SECTION 5: All ordinances or parts of ordinances in conflict with this ordinance or any part thereof is hereby repealed to the extent of such conflict. If any provision of this ordinance conflicts with any contractual provision between the City and the Developer of the site, this ordinance shall prevail.

SECTION 6: If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are declared severable.

SECTION 7: Following the adoption and acceptance of this ordinance by the Owners, and in addition to any other action for failure to complete development or otherwise comply with the

Development Documents, the City Development Director may obtain a hearing before the City Commission and shall thereupon give at least five (5) days written notice of the time, date and location of the hearing, along with specific notice of the alleged breach. At the hearing before the City Commission, the Developer may appear and may contest the allegation of breach or explain the reason or reasons for the breach. Upon a finding of a material breach of the Development Documents and therefore, the Ordinance(s) adopting the same, the City Commission may impose or do any or all of the following:

a. Initiate the process to amend or repeal this or any other ordinance pertaining to the development.
b. Direct the City Development Director to initiate the process to rezone the PUD property or any portion of the PUD property.
c. Impose an administrative penalty of up to $1,000.00 for each violation, and up to $5,000.00 for each repeat violation that occurs, along with all reasonable costs, including attorney's fees incurred by the City.

Any breach of any provision or condition of this PUD ordinance by the Developer shall be considered a zoning violation subject to any remedies provided herein, or as otherwise provided by law. In the event a violation found continues from day to day, each day the violation is found to continue shall be deemed a separate violation.

SECTION 8: This ordinance shall be effective upon the following to occur: adoption by the City Commission, and proper execution and acceptance by the Owner.

SECTION 9: The complete execution and recording of this Ordinance by the City Clerk shall occur no later than 60 days from the date of this approval, failing which this ordinance shall be void.

SECTION 10: Upon complete execution of this Ordinance, including the Acceptance and Agreement by the Owner, the City Clerk is directed to record a Certified Copy of the same in the Public Records of Martin County, Florida.

(The remainder of this page intentionally left blank)

Passed on first reading the __ day of _____ 2022.

Commissioner _____ offered the foregoing Ordinance and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

Commissioner _____ offered the foregoing Resolution and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

	YES	NO	ABSENT	ABSTAIN
MERRITT MATHESON, MAYOR				
TROY MCDONALD, VICE MAYOR				
BECKY BRUNER, COMMISSIONER				
EULA R. CLARKE, COMMISSIONER				
MIKE MEIER, COMMISSIONER				

ADOPTED on second and final reading this _____day of _____, 2022.

ATTEST:

_____ _____

MARY R. KINDEL MERRITT MATHESON
CITY CLERK MAYOR

APPROVED AS TO FORM
AND CORRECTNESS:

_____

MICHAEL J. MORTELL, ESQ.
CITY ATTORNEY

ACCEPTANCE AND AGREEMENT

BY SIGNING THIS ACCEPTANCE AND AGREEMENT, THE UNDERSIGNED HEREBY ACCEPTS AND AGREES TO ALL OF THE TERMS AND CONDITIONS CONTAINED IN A RESIDENTIAL PLANNED UNIT DEVELOPMENT AND IN ALL EXHIBITS, ATTACHMENTS AND DEVELOPMENT DOCUMENTS, INTENDING TO BE BOUND THEREBY, AND THAT SUCH ACCEPTANCE AND AGREEMENT IS DONE FREELY, KNOWINGLY, AND WITHOUT ANY RESERVATION, AND FOR THE PURPOSES EXPRESSED WITHIN THE ABOVE ORDINANCE. IF IT IS LATER DISCOVERED THAT THE UNDERSIGNED, OR ITS SUCCESSORS OR ASSIGNS HAVE FAILED IN ANY MATERIAL WAY TO DEVELOP THIS RESIDENTIAL PLANNED UNIT DEVELOPMENT (RPUD) ACCORDING TO THIS ORDINANCE, ITS CONDITIONS, AND THE DEVELOPMENT PLANS AND DOCUMENTS, THE UNDERSIGNED UNDERSTANDS AND AGREES THAT THIS ORDINANCE MAY BE AMENDED OR REPEALED BY THE CITY COMMISSION, AND THAT OTHER ACTIONS MAY BE TAKEN AGAINST THE UNDERSIGNED BY THE CITY, INCLUDING BUT NOT LIMITED TO CODE ENFORCEMENT ACTIONS, PERMIT AND LICENSING REVOCATIONS, AND ALL APPLICABLE CIVIL AND CRIMINAL ACTIONS.

IN WITNESS WHEREOF THE UNDERSIGNED HAS EXECUTED THIS ACCEPTANCE AND AGREEMENT:

WITNESSES:

_____

Print Name: _____

_____

Print Name: _____

Cypress Holding, LLC

By: _____

Jeffrey H. Sands, Managing Member

OWNERS ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before me this _____ day of _____, 2022, by Jeffrey H. Sands, Managing Member of Cypress Holding, LLC.

_____

Notary Public, State of Florida

My Commission Expires:

Notary Seal

Personally Known _____ OR Produced Identification _____

Type of Identification Produced _____

CITY'S ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before The above Ordinance, Acceptance and Agreement was acknowledged before me by means of ☐ physical presence or ☐ online notarization this _____ day of _____, 2022 Merritt Matheson, Mayor, and Mary Kindel, City Clerk, respectively, of the City of Stuart, Florida, a Florida municipal corporation, who ☐ are personally known to me or ☐ have produced _____as identification.

(Notary Seal)

_____

Signature of Notary Public

Printed Name: _____

EXHIBIT A – LEGAL DESCRIPTION

TOWNE PARK, ACCORDING TO THE PLAT THEIROF AS RECORDED IN PLAT BOOK 11, PAGE 85, PUBLIC RECORDS OF MARTIN COUNTY FLORIDA. CONTAINING 4.88 ACRES, MORE OR LESS.

(The remainder of this page intentionally left blank)

EXHIBIT B – LOCATION MAP

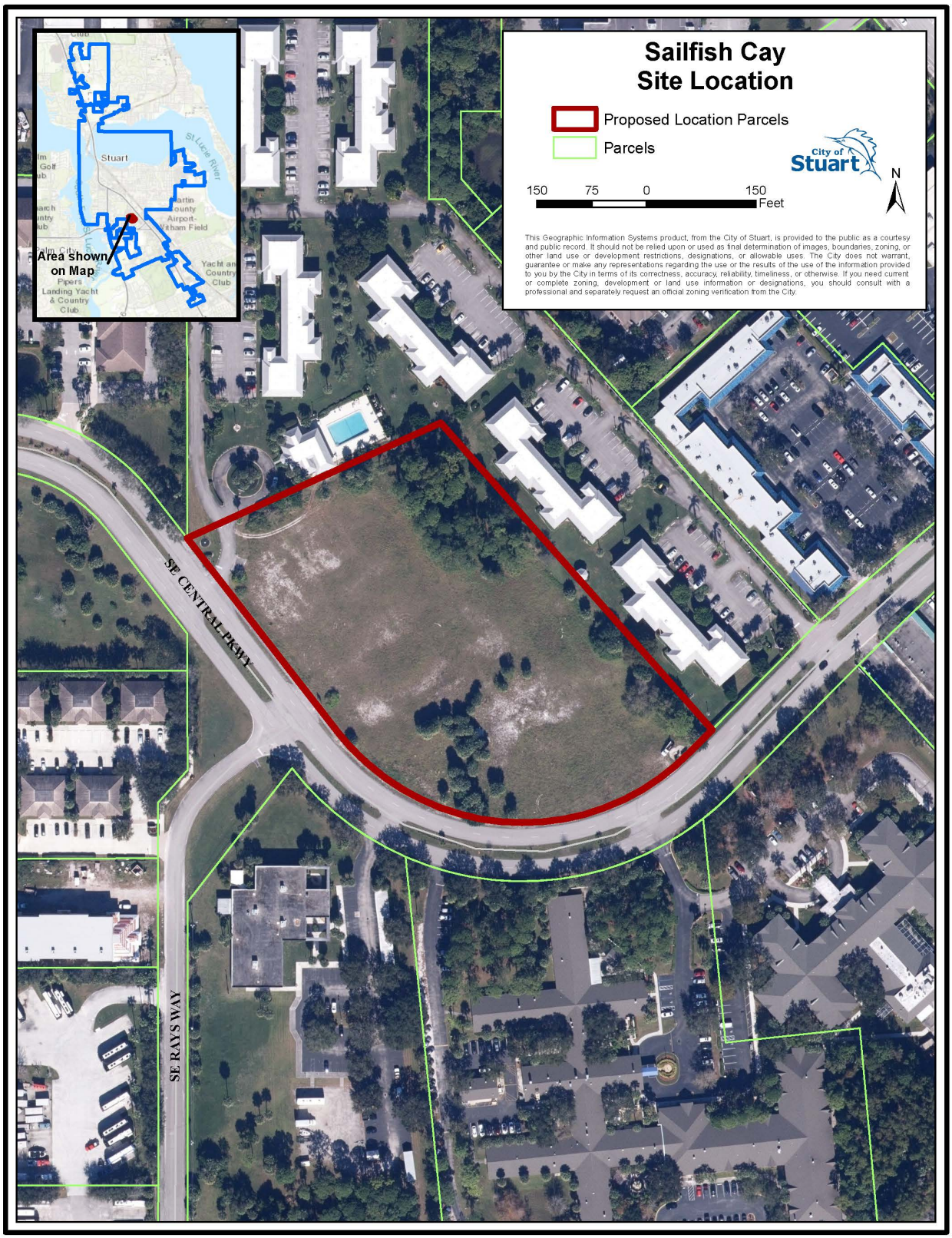


EXHIBIT C – DEVELOPMENT CONDITIONS

Approved Plans and Documents

The Silverthorn RPUD project and use thereof shall comply with the following plans and documents:

a. **Site Plan, Sheet SP-1, prepared by *Litterick Landscape Architecture*, dated March 24, 2022.**
b. **Site Details, Sheet SP-2, prepared by *Litterick Landscape Architecture*, dated March 25, 2022.**
c. **Fire Access Exhibit, Sheet SP-3, prepared by *Litterick Landscape Architecture*, dated February 21, 2022.**
d. **Boundary & Topographic Survey, Sheets 1-3 of 3, prepared by *Engineering Design & Construction, Inc.*, dated February 18, 2022.**
e. **Landscape Plans, Sheets LP-1 through LP-4, prepared by *Litterick Landscape Architecture,* dated October 20, 2021.**
f. **Tree Disposition Plan, Sheets TD-1 and TD-2, prepared by *Litterick Landscape Architecture,* prepared February 21, 2022.**
g. **Sign Plan, Sheet MS-1, prepared by *Camilo Lopez,* dated March 30, 2022.**
h. **Pool Cabana, Sheet A-1, prepared by *Specialty Engineering Consultants, Inc.*, dated February 21, 2022.**
i. **Elevations, 4-Unit Building I, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.**
j. **Elevations, 4-Unit Building Type II, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.**
k. **Elevations, 5-Unit Building, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.**
l. **Elevations, 6-Unit Building, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated January 10, 2022.**
m. **Floor Plans, 7-Unit Building, Sheet A-1, prepared by *Specialty Engineering Consultants, Inc.*, dated February 21, 2022.**

n. Elevations, 7-Unit Building, Sheet A-2, prepared by *Specialty Engineering Consultants, Inc.*, dated February 21, 2022.

o. Unit Plans, Plan A, Plan B, and Plan C, prepared by Dewey A. LeBlanc, dated November 5, 2021.

p. Preliminary Engineering Plan, Sheet 1 of 2, by *Engineering Design & Construction, Inc.*, dated March 30, 2022.

q. Preliminary Engineering Plan, Sheet 2 of 2, by *Engineering Design & Construction, Inc.*, dated February 21, 2022.

r. Lift Station Site Plan, prepared by *City of Stuart Utilities & Engineering Department*, Dated October 2021.

s. Photometric Plan, 1 page, dated January 3, 2022.

t. Lift Station Report, 10 pages, prepared by *Engineering Design & Construction, Inc.,* dated February 2022.

u. Long-Range Traffic Analysis, 4 pages, prepared by *O'Rourke Engineering & Planning*, dated December 10, 2021.

v. Traffic Analysis, 28 pages, prepared by *O'Rourke Engineering & Planning*, dated February 21, 2022.

w. Environmental Assessment, 13 pages, prepared by *Engineering Design & Construction, Inc.,* dated March 22, 2022.

x. Drainage Calculations & Surface Water Management Report, 149 pages, prepared by *Engineering Design & Construction, Inc.,* dated March 2022.

General Conditions

1. The project build-out date shall be five (5) years from the date this ordinance is recorded in the official records book of Martin County.

2. Any modifications to the Master RPUD Site Plan less than 10% of the approved building footprint, building setbacks, gross square footage, building location, parking size, location and number of parking spaces, drainage areas, and location of landscaping may be approved by the City's Development Director, provided however, the Development Director may refer the matter to the City Commission for approval via a public hearing.

3. The maximum building height within the RPUD shall be 2 stories or 30 feet. Height shall be measured from the lowest permissible finished first floor elevation to the surface of a flat roof or to the eave of a pitched roof. The peak of a pitched roof may not exceed 15

feet above the maximum building height.

4. Prior to approval of the plat, the Applicant shall provide a sidewalk connection north of Building 8 to connect to the sidewalk in front of Building 7.
5. All work shall conform with the 7th edition of the Florida Fire Prevention Code.
6. Prior to the issuance of a Certificate of Occupancy for each building, an inspection from the Development Department is required.
7. Prior to the issuance of the first building permit, the Developer shall schedule through the Building Department a pre-construction meeting.
8. All gutters, downspouts, vents, and louvers attached to the building shall be painted to match the surface to which it is attached.
9. By acceptance of this development order, the Applicant acknowledges and agrees to abide by the terms of Florida Statute 166.033 pertaining to state and federal agency permits.
10. Consistent with F.S. 163.31801 and prior to the issuance of each building permit, the owner shall pay all applicable impact fees.

Landscaping

11. The common areas including, but not limited to, the project's cabana and pool area shall be installed with landscaping with an irrigation system of enough capacity to maintain the landscaping in a healthy growing condition.
12. The City's landscape inspector shall have the opportunity to inspect all trees and/or landscape material with the landscape architect prior to installation. The Developer shall bear the pass-thru fee for landscape consulting fees not to exceed $1,500.00.
13. A Landscape maintenance plan, executed in accordance with the Land Development Regulations, shall be submitted to the Development Department and approved prior to the issuance of a certificate of occupancy.

Required Pervious and Open Space

14. Not less than 30% of the RPUD shall be open space that may include landscaped buffer areas as depicted on the Site & Landscape Plans, prepared by *Litterick Landscape Architecture,* as described in Exhibit C.

15. Development of the Subject Property as a RPUD shall include an impervious area of not more than 148,345 square feet or 3.4 acres (69.7% of the site).

Tree Mitigation

16. The project shall comply with the project's Tree Mitigation/Tree Disposition Chart, Sheet TD-2, prepared by *Litterick Landscape Architecture*, as referenced in Exhibit "C".

Prior to Issuance of Site Permits

17. Prior to the issuance of the first site permit, the Applicant shall provide a digital boundary survey and civil plan.

18. Prior to the issuance of the first site permit, the Civil Plans shall be reviewed and approved by all applicable City departments and consultants, if deemed necessary by the City.

19. Prior to the issuance of the first site permit, all regulatory agency permits, including but not limited to the South Florida Water Management District and Army Corp of Engineers, shall be obtained by the applicant and copies provided to the City.

20. Prior to the issuance of the first site permit, the applicant shall submit to the City for review and approval a revised drainage report with: (1) survey data showing the elevations of the roads and parking of Towne Park North development, and (2) a simulation model utilizing this data for the 10-year, 1-day storm to demonstrate that there will be no flooding on the Towne Park North site as a result of the Sailfish Cay development. If the submitted simulation model shows any adverse drainage effects on the Towne Park North site, the Applicant shall provide to the City for review and approval revised development plans that correct this condition.

21. Prior to the issuance of the first site permit, the applicant shall submit to the City for review and approval a stormwater model to reflect full retention pond recovery at 72 hours. If the submitted simulation model does not show full recovery, the Applicant shall provide to the City for review and approval revised development plans that correct this condition.

22. Prior to issuance of the first site permit, the applicant shall provide to the City Development Department a Stormwater Management System Operation and Maintenance Plan for review and approval. The Plan shall provide general maintenance requirements and require that inspection of all bioswales occur on a quarterly basis and following a storm event. If standing water persists longer than 72 hours after a normal summer rain event, or if wetland vegetation such as cattails grow in the pond, the stormwater facility must be repairs, using such methods as such as scarifying or raking the pond bottom, or removing the bottom foot (12 inches) of soil and replacement with clean sand.

23. All development activities shall comply with the City's Concurrency Management System prior to the issuance of building permits.

Development and Construction

24. Prior to the issuance of a Certificate of Occupancy for each building, an inspection from the Development Department is required.

25. Prior to the issuance of the first building permit, the Applicant shall schedule through the Building Department a pre-construction meeting.

26. Any tree proposed for onsite relocation that does not survive shall be replaced at a 1/1 ratio per caliper inch, or as otherwise approved by the City's Development Director.

27. Prior to the issuance of the Certificate of Occupancy for each building, all new ground-mounted and rooftop mechanical equipment shall be screened from view, unless otherwise exempted by the City Fire Marshal or the Public Works Department.

28. At no time shall staging of construction vehicles and/or service vehicles occur within a public right-of-way.

29. The Developer, successors, or assigns shall be responsible for the maintenance of all onsite landscaping, stormwater maintenance, concrete/asphalt/pavers, and all other site elements approved within the Development Documents.

30. The Developer shall install landscaping at the development's entry and within all perimeter buffers as shown on the landscaping plans prior to the first certificate of occupancy for a residential unit.

31. The proposed cabana and pool landscaping shall be completed before the certificate of occupancy has been issued for the sixth (6^{th}) residential unit or within 12 months from the start of any development activity, whichever occurs first.

32. Prior to the issuance of the first building permit, the Developer shall eradicate all invasive vegetation from the entire site and shall subsequently request an inspection from the City.

33. Prior to first certificate of occupancy of the last building to be constructed, the Developer shall provide an engineer's written confirmation attesting that the RPUD's stormwater system is in place and functioning in compliance with all approved plans and specifications.

34. Erosion and dust control measures to be implemented during construction shall be provided on the civil plans and submitted during site permit review. Water trucks shall be provided by the Developer as necessary during construction in order to reduce the dust generated on-site.

35. All utility improvements constructed by the Developer within City's right-of-way, shall be constructed in a manner and form acceptable to the City's Utilities & Engineering department.

36. The project's native planting schemes at the lake and within the bioswales will be designed using Low Impact Development "(LID) Techniques as described in the University of Florida IFSA Extension publication LID Practices: Integration Wetlands and Enhancing Storm water Basins".

37. Temporary or freestanding storage units are prohibited on the property once construction is complete.

38. All on-site lighting shall be cast downward and shielded from adjacent properties.

39. Site work including but not limited to land preparation, lake excavation, clearing and grading, drainage and water, sewer and irrigation lines, and private road shall be reviewed and approved by the City's Public Works department and the City's engineering consultant prior to permitting. Specifically, but not limited to:

    a. Private Road (entry and within the development)

    b. Central Parkway right-of-way

    c. All public and private sidewalks

    d. Proposed Lake & Bioswales

    e. Cabana and Pool

Signage

40. All signs throughout the PUD must have a consistent treatment, as to number, location, size, height, lighting, and materials with a unified theme throughout the Planned Unit Development. The development's monument sign shall adhere to the Sign Plan prepared by *Camilo Lopez* referenced in Exhibit C.

Platting- HOA Requirements & Future Amendments

41. Plat approval per Section 11.01.06.1 shall occur prior to any future development permit for any development activity. No permits for development activities including, but not limited to, site work and infrastructure, shall be issued by the City unless and until a plat has been approved by the City Commission and recorded in the public records.

42. The plat shall provide an easement for the Towne Park monument sign in favor of the Towne Park Homeowner's Association (HOA) for maintenance and to allow the sign to remain on the Sailfish Cay RPUD project site.

43. The plat shall provide a 10-foot maintenance easement for the lake retention wall located on the south side of the lake.

44. The property owner shall provide easements for licensed cable services.

45. The PUD may be conveyed to 60 separate homeowners without further amendment to this Ordinance. Prior to application for any development, the Applicant/Developer shall form a HOA (Homeowners Association) or other similar entity acceptable to the City Attorney,

which shall be singularly responsible for the perpetual maintenance of the common site, right-of-way road shoulder and median. The HOA declarations shall also include restrictions regarding boats, boat trailers, sheds, etc.

46. City of Stuart waste receptacles, including recycle shall be stored in garages only. The developments HOA shall be responsible for enforcing this waste receptable policy. The receptacles at the amenity areas shall be stored inside the clubhouse or outside in an approved enclosure. The development's HOA shall be responsible for enforcing this waste receptable policy. The property-owners association shall pay for initial bins (one trash bin and one recycle bin) for each unit and the pool cabana for a total of 61 trash bins and 61 recycle bins at the time of permitting. The City will provide a single bill to the HOA for trash pick-up.

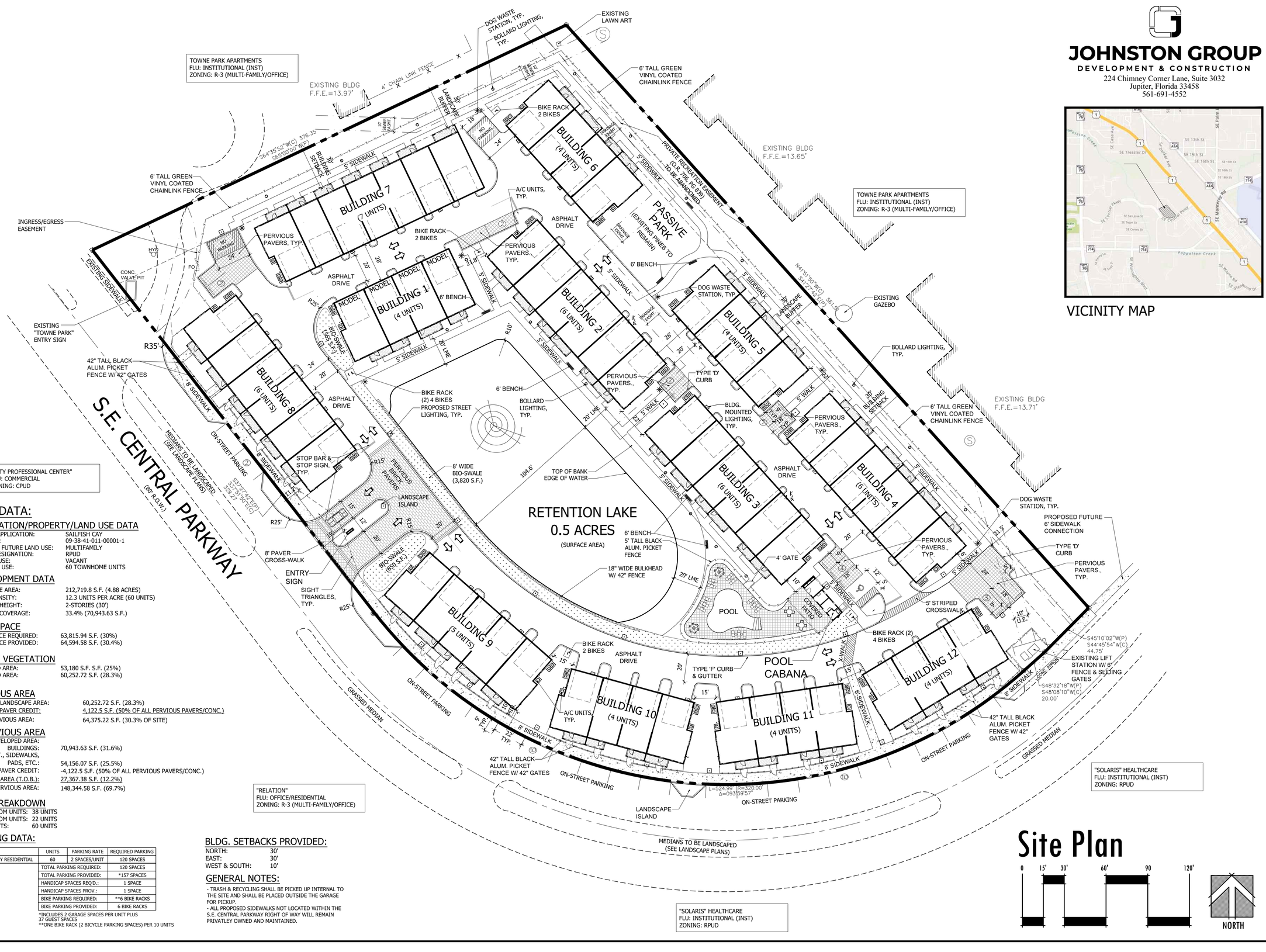
47. The Developer and home-owners association shall request and consent to law enforcement entry to property and enforcement of state and city laws to include traffic enforcement. Additionally, the City of Stuart Police Department shall have authority to enforce city laws and all conditions of development of Ordinance 2487-2022.

48. No yard waste shall be placed in the street.

49. All new fences shall be maintained by the project's Home-Owners Association.

50. Any applications to amend this Ordinance shall be limited to the Developer or the Home-Owners Association.

51. The Home-Owner's Association shall regulate any permits for guest parking.



SITE DATA:

APPLICATION/PROPERTY/LAND USE DATA

NAME OF APPLICATION:	SAILFISH CAY
PARCEL ID:	09-38-41-011-00001-1
PROPOSED FUTURE LAND USE:	MULTIFAMILY
ZONING DESIGNATION:	RPUD
EXISTING USE:	VACANT
PROPOSED USE:	60 TOWNHOME UNITS

DEVELOPMENT DATA

TOTAL SITE AREA:	212,719.8 S.F. (4.88 ACRES)
GROSS DENSITY:	12.3 UNITS PER ACRE (60 UNITS)
BUILDING HEIGHT:	2-STORIES (30')
BUILDING COVERAGE:	33.4% (70,943.63 S.F.)

OPEN SPACE

OPEN SPACE REQUIRED:	63,815.94 S.F. (30%)
OPEN SPACE PROVIDED:	64,594.58 S.F. (30.4%)

NATIVE VEGETATION

REQUIRED AREA:	53,180 S.F. S.F. (25%)
PROVIDED AREA:	60,252.72 S.F. (28.3%)

PERVIOUS AREA

PERVIOUS/LANDSCAPE AREA:	60,252.72 S.F. (28.3%)
PERVIOUS PAVER CREDIT:	4,122.5 S.F. (50% OF ALL PERVIOUS PAVERS/CONC.)
TOTAL PERVIOUS AREA:	64,375.22 S.F. (30.3% OF SITE)

IMPERVIOUS AREA

TOTAL DEVELOPED AREA:	
BUILDINGS:	70,943.63 S.F. (31.6%)
PAVM'T., SIDEWALKS, PADS, ETC.:	54,156.07 S.F. (25.5%)
PERVIOUS PAVER CREDIT:	-4,122.5 S.F. (50% OF ALL PERVIOUS PAVERS/CONC.)
LAKE AREA (T.O.B.):	27,367.38 S.F. (12.2%)
TOTAL IMPERVIOUS AREA:	148,344.58 S.F. (69.7%)

UNIT BREAKDOWN

3 - BEDROOM UNITS:	38 UNITS
4 - BEDROOM UNITS:	22 UNITS
TOTAL UNITS:	60 UNITS

PARKING DATA:

USE	UNITS	PARKING RATE	REQUIRED PARKING
MULTI-FAMILY RESIDENTIAL	60	2 SPACES/UNIT	120 SPACES
	TOTAL PARKING REQUIRED:		120 SPACES
	TOTAL PARKING PROVIDED:		*157 SPACES
	HANDICAP SPACES REQ'D.:		1 SPACE
	HANDICAP SPACES PROV.:		1 SPACE
	BIKE PARKING REQUIRED:		**6 BIKE RACKS
	BIKE PARKING PROVIDED:		6 BIKE RACKS

*INCLUDES 2 GARAGE SPACES PER UNIT PLUS 37 GUEST SPACES
**ONE BIKE RACK (2 BICYCLE PARKING SPACES) PER 10 UNITS

BLDG. SETBACKS PROVIDED:

NORTH:	30'
EAST:	30'
WEST & SOUTH:	10'

GENERAL NOTES:

- TRASH & RECYCLING SHALL BE PICKED UP INTERNAL TO THE SITE AND SHALL BE PLACED OUTSIDE THE GARAGE FOR PICKUP.
- ALL PROPOSED SIDEWALKS NOT LOCATED WITHIN THE S.E. CENTRAL PARKWAY RIGHT OF WAY WILL REMAIN PRIVATLEY OWNED AND MAINTAINED.

Site Plan

0 15' 30' 60' 90 120'

NORTH

JOHNSTON GROUP
DEVELOPMENT & CONSTRUCTION
224 Chimney Corner Lane, Suite 3032
Jupiter, Florida 33458
561-691-4552

VICINITY MAP

Litterick Landscape Architecture
LC26000482
2740 SW Martin Downs Blvd. #199
Palm City, Fl 34990
561-719-3876
JasonLA1677@yahoo.com

Sailfish Cay

Stuart, Florida

751 Central Parkway

Landscape Architect of Record

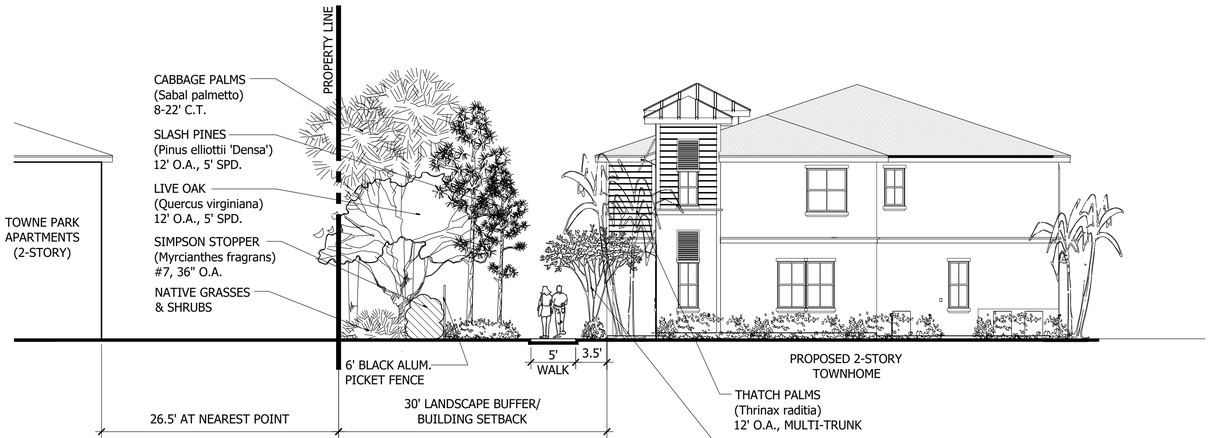
Jason M. Litterick, RLA
(LA0001677)

Scale: 1" = 30'-0"

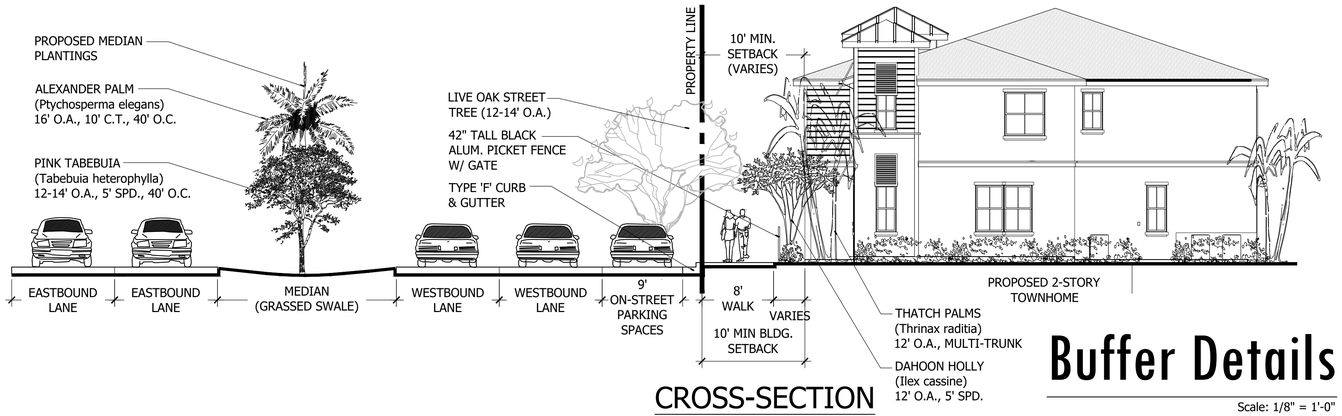
Designed:	JML
Drawn:	JML
Approved:	JML
Date:	11/5/21
Job no.	
Revisions:	1/7/22
	2/21/22
	3/24/22

Sheet No.

SP-1

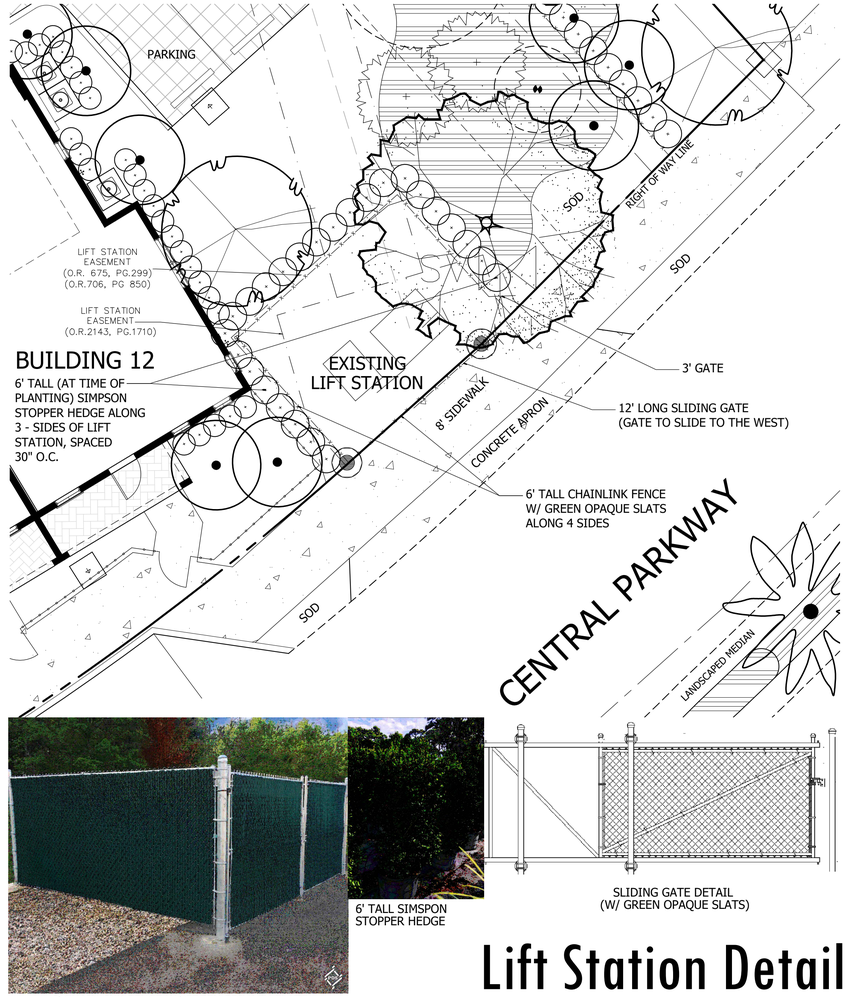


CROSS-SECTION
NORTH AND EAST LANDSCAPE BUFFERS



CROSS-SECTION
CENTRAL PARKWAY BUFFER

Buffer Details
Scale: 1/8" = 1'-0"

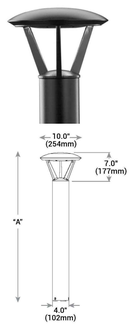


6' CHAINLINK FENCE W/ GREEN PRIVACY SLATS

6' TALL SIMPSON
STOPPER HEDGE

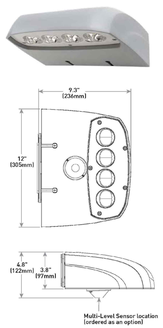
SLIDING GATE DETAIL
(W/ GREEN OPAQUE SLATS)

Lift Station Detail
Scale: 1/8" = 1'-0"



CREE LIGHTING "THE EDGE" SERIES
LED PATHWAY LUMINAIRE, 42" TALL

BOLLARD DETAIL
Not to Scale

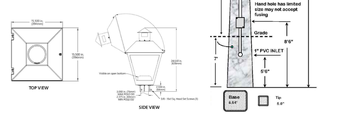


CREE LIGHTING "XSP" SERIES
LED WALL MOUNT LUMINAIRE

WALL SCONCE DETAIL
Not to Scale



DOG WASTE STATION



'GE CURRENT' EVOLVE SERIES
LED POST TOP FIXTURE

'UTILITY STRUCTURES INC.'
PRESTRESSED CONC. POLE

STREET LIGHT DETAIL
Not to Scale

DRIVEWAY, POOL DECK &
PATIO PAVERS



DRIFTWOOD
TREMRON 4" X 8" CONCRETE PAVERS
COLOR: DRIFTWOOD

PERMEABLE PAVERS
COLOR: DRIFTWOOD



4X8 PERMEABLE

PAVER DETAILS
Not to Scale



WABASH VALLEY 6' RECYCLED PLASTIC BENCH

BENCH DETAIL
Not to Scale



MADRAX DIVISION

GRABER MANUFACTURING, INC.
1080 UNIEK DRIVE
WAUNAKEE, WI 53597
P(800) 448-7931, P(608) 849-1080, F(608) 849-1081
WWW.MADRAX.COM, E-MAIL: SALES@MADRAX.COM

PRODUCT: 'U' RACK -U238
DESCRIPTION: BLACK U-RACK BIKE RACK
2 BIKE, SURFACE MOUNT

BIKE RACK DETAIL
SCALE: NOT TO SCALE

Site Details
Scale: As Noted

Litterick
Landscape
Architecture
LC26000482
2740 SW Martin Downs Blvd. #199
Palm City, Fl 34990
561-719-3876
JasonLA1677@yahoo.com

Sailfish Cay
751 Central Parkway Stuart, Florida

Landscape Architect of Record

Jason M. Litterick, RLA
(LA0001677)

Scale: As Noted

Designed:	JML
Drawn:	JML
Approved:	JML
Date:	11/5/21
Job no.	
Revisions:	11/22/21
	1/7/22
	2/21/22
	3/25/22

Sheet No.
SP-2

Fire Access Exhibit

0 5' 10' 20' 30' 40'

NORTH

NOTE: PLAN DEMONSTRATES WORST CASE SCENARIO FOR FIRE ACCESS BASED ON LARGEST BUILDING PROPOSED (7 UNITS, 2 STORY)

118' DISTANCE FROM FIRE TRUCK TO MIDPOINT OF REAR FACADE

120' DISTANCE FROM FIRE TRUCK TO MIDPOINT OF REAR FACADE

PROPERTY LINE

30' BUILDING SETBACK

30' LANDSCAPE BUFFER

5' SIDEWALK

BUILDING 7
(7 UNITS)

BUILDING 6
(4 UNITS)

BUILDING 1
(4 UNITS)

BIKE RACK
2 BIKES

NO PARKING
FIRE TRUCK

NO PARKING
FIRE TRUCK

PERVIOUS CONC., TYP.

5' SIDEWALK

FO

JOHNSTON GROUP
DEVELOPMENT & CONSTRUCTION
224 Chimney Corner Lane, Suite 3032
Jupiter, Florida 33458
561-691-4552

Litterick Landscape Architecture
2740 SW Martin Downs Blvd. #199
Palm City, Fl 34990
561-719-3876
JasonLA1677@yahoo.com

Sailfish Cay
751 Central Parkway Stuart, Florida

Landscape Architect of Record

Jason M. Litterick, RLA
(LA0001677)

Scale: 1" = 10'

Designed:	JML
Drawn:	JML
Approved:	JML
Date:	1/7/22
Job no.	
Revisions:	2/21/22

Sheet No.
SP-3

BOUNDARY & TOPOGRAPHIC SURVEY

FOR: CYPRESS HOLDINGS, LLC.

SCHEDULE B-II ITEMS

TITLE COMMITMENT PREPARED BY
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
COMMITMENT # 1094514 A1
COMMITMENT DATE: MAY 23, 2021, AT 11:00 PM

4. ANY LIEN PROVIDED BY COUNTY ORDINANCE OR BY CHAPTER 159, F.S., IN FAVOR OF ANY CITY, TOWN, VILLAGE OR PORT AUTHORITY, FOR UNPAID SERVICE CHARGES FOR SERVICES BY ANY WATER SYSTEMS, SEWER SYSTEMS OR GAS SYSTEMS SERVING THE LAND DESCRIBED HEREIN; AND ANY LIEN FOR WASTE FEES IN FAVOR OF ANY COUNTY OR MUNICIPALITY.
AFFECTS SUBJECT PROPERTY; NOT A SURVEY MATTER.

5. RIGHTS OF THE LESSEES UNDER UNRECORDED LEASES.
AFFECTS SUBJECT PROPERTY; NOT A SURVEY MATTER.

6. ALL MATTERS CONTAINED ON THE PLAT OF TOWNE PARK, AS RECORDED IN PLAT BOOK 11, PAGE 85, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **SHOWN ON SURVEY.**

10. EASEMENT FOR PERRY CABLE TV CORP. RECORDED IN O.R. BOOK 548, PAGE 987, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **AFFECTS SUBJECT PROPERTY; BLANKET IN NATURE.**

11. SANITARY SEWER LIFT STATION EASEMENT RECORDED IN O.R. BOOK 675, PAGE 299, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **SHOWN ON SURVEY.**

12. SEWER, WATER AND LIFT STATION EASEMENT AGREEMENT RECORDED IN O.R. BOOK 706, PAGE 850, AS AFFECTED BY INSTRUMENT RECORDED IN O.R. BOOK 2003, PAGE 1824, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
EASEMENT #1 SHOWN ON SURVEY, EASEMENT #3 TERMINATED/ABANDONED BY O.R. BOOK 2003, PAGE 1826.

13. ACCESS, INGRESS AND EGRESS AND UTILITY EASEMENT AGREEMENT WITH TOWNE PARK NORTH CONDOMINIUM RECORDED IN O.R. BOOK 706, PAGE 833, AS AFFECTED BY INSTRUMENT RECORDED IN O.R. BOOK 2003, PAGE 1824, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **EASEMENT TERMINATED/ABANDONED.**

14. RECREATION EASEMENT AGREEMENT RECORDED IN O.R. BOOK 706, PAGE 839, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
LICENSE AGREEMENT TERMINATED BY O.R 3247, P.G 2148.

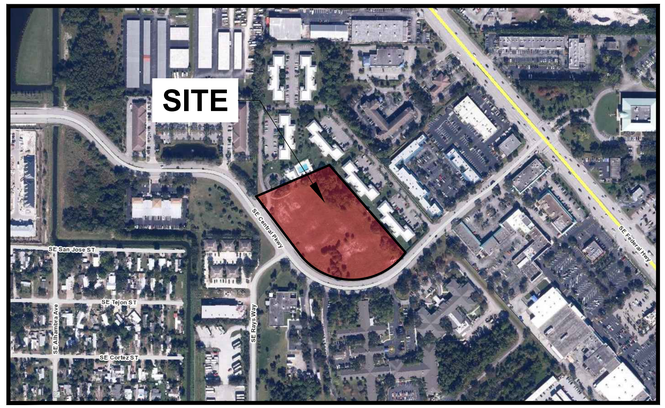
15. DRAINAGE EASEMENT AGREEMENT RECORDED IN O.R. BOOK 706, PAGE 859 AS AFFECTED BY AGREEMENT RECORDED IN O.R. BOOK 2003, PAGE 1822, MARTIN COUNTY, FLORIDA. **TO BE RELOCATED.**

17. RESOLUTION NUMBER 43-06 RECORDED IN O.R. BOOK 2143, PAGE 1710, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
SHOWN ON SURVEY.

18. ORDINANCE NUMBER 2106-07 RECORDED IN O.R. BOOK 2285, PAGE 943, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
AFFECTS SUBJECT PROPERTY; BLANKET IN NATURE.

CERTIFIED TO:

1. JOHNSTON GROUP DEVELOPMENT & DESIGN, INC.
2. 751 SE CENTRAL, LLC.



MARTIN COUNTY, FLORIDA
VICINITY MAP
NO SCALE

SYMBOL & ABBREVIATION LEGEND:

(A)	AIR RELEASE VALVE	DIP	DUCTILE IRON PIPE	HYD	HYDRANT	PCP	PERMANENT CONTROL POINT
AL	ARC LENGTH	E	EAST/EASTING	IN	INCH	PRM	PERMANENT REFERENCE MONUMENT
ASPH	ASPHALT	EOW	EDGE OF WATER	INV	INVERT	P.B.	PLAT BOOK
BFP	BACK FLOW PREVENTER	EB	ELECTRIC BOX	IP	IRON PIPE	(P)	PLAT DATA
	BENCHMARK (BM)	EHH	ELECTRIC HAND HOLE (EHH)	IR	IRON ROD	P.O.B.	POINT OF BEGINNING
	BIKE RACK	EM	ELECTRIC METER	IR/C	IRON ROD AND CAP	P.O.C.	POINT OF COMMENCEMENT
CATV □	CABLE RISER	ELEC PANEL	ELECTRICAL PANEL		IRRIGATION CONTROL VALVE	P.C.C.	POINT OF COMPOUND CURVE
(C)	CALCULATED	EL./ELEV.	ELEVATION	L	LENGTH	P.C.	POINT OF CURVATURE
	CATCH BASIN	FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY		LIGHT POST	P.T.	POINT OF TANGENCY
℄	CENTERLINE	F.O.	FIBER OPTIC	MAG/D	MAG NAIL MAG BRAND NAIL	P.O.T.	POINT OF TERMINUS
CCR	CERTIFIED CORNER RECORD	FOHH	FIBER OPTIC HAND HOLE	(M)	MAILBOX	PVC	POLYVINYL CHLORIDE
CLF	CHAIN LINK FENCE		FIBER OPTIC MARKER	M.C.	MARTIN COUNTY	PSL	PORT SAINT LUCIE, FLORIDA
CHD.	CHORD	FIBER RISER	FIBER OPTIC RISER	MHWL	MEAN HIGH WATER LINE	PLS	PROFESSIONAL LAND SURVEYOR
CO O	CLEAN OUT	(M)	FIELD MEASURED	MLWL	MEAN LOWER WATER LINE	R	RADIUS
COMM RISER	COMMUNICATION RISER	F.F.E.	FINISHED FLOOR ELEVATION		METAL LIGHT POST	RGE	RANGE
CONC	CONCRETE	FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION		METAL POWER POLE	RTK	REAL TIME KINEMATIC
	CONCRETE LIGHT POST	FPL	FLORIDA POWER AND LIGHT	MP	METAL PIPE	RWV	RECLAIMED WATER VALVE
CM	CONCRETE MONUMENT	FT	FOOT	MON	MONUMENT	RLS	REGISTERED LAND SURVEYOR
CPP	CONCRETE POWER POLE (CPP)	FM	FORCE MAIN	NGVD29	NATIONAL GEODETIC VERTICAL DATUM OF 1929	RCP	REINFORCED CONCRETE PIPE
	CONCRETE POWER POLE W/STREET LIGHT	FND	FOUND	N/D	NON DESCRIPT NAIL AND DISK	R/W	RIGHT-OF-WAY
	CONCRETE SIGNAL LIGHT POLE	(F)	FPL MANHOLE	N.R.	NON RADIAL	R/C	ROD AND CAP
CMP	CORRUGATED METAL PIPE	SQ FT.	SQUARE FEET	NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988	(S)	SANITARY MANHOLE
	CURB INLET	GAS	GAS VALVE	N	NORTH OR NORTHING	SV	SANITARY VALVE
	DECORATIVE LIGHT POST	GIS	GEOGRAPHIC INFORMATION SYSTEMS	No.	NUMBER	SEC	SECTION
(D)	DEED	GND	GROUND	O.R.B.	OFFICIAL RECORDS BOOK		PROPERTY CORNER
D.B.	DEED BOOK		GROUND LIGHT	OHW	OVER HEAD WIRES		RIGHT-OF-WAY CONTROL
Δ	DELTA/CENTRAL ANGLE		GUY WIRE ANCHOR	PG	PAGE		SIGN
ø	DIAMETER (DIA.)		HANDICAP	PCN	PARCEL CONTROL NUMBER	S	SOUTH
(D)	DRAINAGE MANHOLE	HDPE	HIGH DENSITY POLYETHYLENE PIPE	PK NAIL	PARKER-KALON NAIL		SPIGOT
		HWF	HOG WIRE FENCE	PK/D	PARKER-KALON NAIL & DISK		SPRINKLER VALVE

S.L.C.	ST. LUCIE COUNTY		STREET SIGN
STA	STATION	TELE RISER	TELEPHONE RISER BOX
(D)	STORMWATER DRAINAGE MANHOLE	TOE	TOE OF SLOPE
		TOB	TOP OF BANK/BERM
T.O.N.	TOP OF NUT		TOPOGRAPHIC DATA (SOFT SURFACE)
X 0.0	TOPOGRAPHIC DATA (HARD SURFACE)	X 0.00	
TWNSHP	TOWNSHIP	T	TRAFFIC HANDHOLD
TSCB	TRAFFIC SIGNAL CONTROL BOX	TYP	TYPICAL
U.E.	UTILITY EASEMENT	UNK	UNKNOWN
UHH	UNKNOWN HANDHOLD		
RISER	UNKNOWN RISER BOX	(U)	UNKNOWN TYPE MANHOLE
VCP	VITRIFIED CLAY PIPE	WM	WATER METER
	WATER SERVICE METER (WM)	WV	WATER VALVE (WV)
	WELL	W	WEST
WF	WOOD FENCE		WOOD POLE STREET LIGHT
	WOOD POWER POLE		

LEGAL DESCRIPTION:

TOWNE PARK, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 11, PAGE 85, PUBLIC RECORDS OF MARTIN COUNTY FLORIDA.

CONTAINING 4.88 ACRES, MORE OR LESS.

SURVEYORS NOTES AND REPORT:

1. REPRODUCTIONS OF THIS MAP ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. THIS SURVEY CANNOT BE TRANSFERRED OR ASSIGNED WITHOUT THE SPECIFIC WRITTEN PERMISSION OF ENGINEERING, DESIGN AND CONSTRUCTION, INC. IT IS A VIOLATION OF CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, TO ALTER THIS SURVEY WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE SURVEYOR. ADDITIONS AND/OR DELETIONS MADE TO THE FACE OF THIS SURVEY WILL MAKE THIS SURVEY INVALID.
2. THE LAST DATE OF FIELD WORK WAS JULY 15, 2021.
3. CURRENT DESCRIPTION(S) SHOWN HEREON PROVIDED BY: THE CLIENT. A TITLE SEARCH FOR THIS PROPERTY HAS BEEN ABSTRACTED TO SHOW MATTERS OF RECORD SUCH AS EASEMENTS OR OTHER ENCUMBRANCES OR RESTRICTIONS.
4. THE EXPECTED USE OF THE LAND, AS CLASSIFIED IN CHAPTER 5J-17.050-053, FLORIDA ADMINISTRATIVE CODE, IS "COMMERCIAL/HIGH RISK." THE MINIMUM RELATIVE DISTANCE ACCURACY FOR THIS TYPE OF BOUNDARY SURVEY IS 1 FOOT IN 10,000 FEET. THIS SURVEY EXCEEDS THE REQUIRED DISTANCE ACCURACY.
5. THIS BOUNDARY SURVEY HAS BEEN REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM-EAST ZONE, NAD 83 (1990).
6. SUB-SURFACE IMPROVEMENTS INCLUDING UNDERGROUND UTILITIES, UTILITY SERVICES, WERE NOT LOCATED AS PART OF THIS SURVEY.
7. REVISIONS SHOWN HEREON DO NOT REPRESENT A "FIELD SURVEY UPDATE" UNLESS OTHERWISE NOTED.
8. BEARINGS SHOWN HERON ARE BASED UPON GRID BEARINGS AND REFERENCE TO THE LINE LABELED HERON AS (BEARING BASIS) AND ALL OTHER BEARINGS ARE RELATIVE THERETO. DISTANCES ARE IN U.S. SURVEY FEET AND DECIMAL PARTS THEREOF.
9. ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND BASED ON MARTIN COUNTY BENCHMARK "CPW-3", ELEVATION 10.70 FEET, AND BENCHMARK "CPW-4", ELEVATION 11.94 FEET.
10. THIS SITE WAS SURVEYED UTILIZING TRIMBLE/SPRECTRA HARDWARE TOGETHER WITH SPECTRA SURVEY PRO REALTIME PROCESSING AND WAS BASED ON TRIMBLES "VRS NOW" NETWORK AND/OR THE FLORIDA PERMANENT REFERENCE NETWORK (FPRN). THE PROCEDURES AND NETWORK DESIGN MEETS THE GEODETIC ACCURACY STANDARDS AND SPECIFICATIONS FOR USING GPS RELATED POSITIONING AS SET FORTH BY THE FEDERAL GEODETIC CONTROL COMMITTEE IN THE MOST CURRENT PUBLICATION FOR 3RD ORDER CLASS ONE FOR HORIZONTAL CONTROL SURVEYS.
11. IN SOME INSTANCES, GRAPHIC REPRESENTATIONS AND SYMBOLS SHOWN HAVE BEEN EXAGGERATED TO MORE CLEARLY ILLUSTRATE THE RELATIONSHIP BETWEEN PHYSICAL IMPROVEMENTS AND/OR LOT LINES. THE DIMENSIONS SHOWN SHALL CONTROL THE LOCATION, OF THE IMPROVEMENTS, OVER THE SCALED POSITIONS.
12. THE OWNERSHIP OF PERIMETER FENCES, WALLS, HEDGES AND LANDSCAPING, IF ANY, SHOWN HEREON ARE NOT KNOWN AND ARE NOT LISTED AS ENCROACHMENTS. THEIR RELATIVE LOCATION IS SHOWN IN RELATION TO THE BOUNDARY LINES SHOWN.
13. THE SURVEY MAP SHOWN HEREON DOES NOT NECESSARILY CONTAIN ALL OF THE INFORMATION OBTAINED OR DEVELOPED BY THE UNDERSIGNED SURVEYOR IN HIS FIELD WORK, OFFICE WORK OR RESEARCH.
14. THE PROPERTY WHICH IS THE SUBJECT OF THIS SURVEY APPEARS TO BE SITUATE IN AN AREA OF MINIMAL FLOOD HAZARD ZONE X AT THIS TIME PURSUANT TO F.E.M.A. FIRM NUMBER 12085C0161H, HAVING AN EFFECTIVE DATE OF FEBRUARY 19, 2020. FOR APPROXIMATE DELINEATION OF THE FLOOD ZONE LIMITS, REFER TO AFOREMENTIONED FIRM PANELS.

MICHAEL T. OWEN PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA REGISTRATION #5556

SIGNATURE DATE:

ENGINEERS SURVEYORS ENVIRONMENTAL
10250 VILLAGE PARKWAY
UNIT 201
PORT ST. LUCIE, FL 34987
772-462-2455
www.edc-inc.com
F.B.P.E. CERTIFICATE OF AUTHORIZATION 9935
L.B. CERTIFICATE OF AUTHORIZATION 8098

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CHECKED BY	MTO
FIELD CREW	SV
FILENAME	21-353.DWG
SCALE	AS SHOWN
DATE	February 23, 2022

DATE	REVISION COMMENTS
2/23/22	REVISED PER CLIENT COMMENT (EASEMENT LABEL) - SPT
2/18/22	REVISED PER CLIENT COMMENT (EASEMENT LABEL) - SPT

BOUNDARY & TOPOGRAPHIC SURVEY
FOR: CYPRESS HOLDING, LLC.
RECORD INFORMATION
SEC. 9, TWNSHP. 38 SOUTH, RGE. 41 EAST
MARTIN COUNTY, FLORIDA

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UNIT 201
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1 OF 3

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BOUNDARY & TOPOGRAPHIC SURVEY

FOR: CYPRESS HOLDINGS, LLC.



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

ENGINEERS ◔ SURVEYORS
ENVIRONMENTAL

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BOUNDARY & TOPOGRAPHIC SURVEY
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BOUNDARY & TOPOGRAPHIC SURVEY

FOR: CYPRESS HOLDINGS, LLC.



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 inch = 60 ft.

TREE TABLE:

TAG#	TREE NAME	DIAMETER(IN)
1101	PALM	
1102	PALM	
1103	PALM	
1104	PALM	
1105	PALM	
1106	PALM	
1107	PALM	
1108	PALM	
1109	PINE	20
1110	PINE	16
1111	PINE	12
1112	PINE	12
1113	PINE	10
1114	PALM	
1115	PINE	12
1116	PINE	14
1117	PINE	14
1118	PALM	
1119	PINE	15
1120	PINE	14
1121	PINE	12
1122	PINE	12
1123	PINE	8
1124	PINE	10
1125	PINE	14
1126	PINE	20
1127	PALM	
1128	PINE	8
1129	PINE	20
1130	PINE	16
1131	PINE	20
1132	PINE	16
1133	PINE	14
1134	PALM	
1135	PINE	10
1136	PINE	10
1137	PINE	10
1138	PALM	
1139	PALM	
1140	PALM	
1141	PALM	
1142	PALM	
1143	PALM	
1144	PALM	
1145	PALM	
1146	PALM	
1147	PALM	
1148	PALM	
1149	PALM	
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1177	PALM	
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1184	PALM	
1185	PALM	
1186	PALM	
1187	PALM	
1188	PALM	
1189	PALM	
1190	PALM	
1191	PALM	
1192	PALM	
1193	PALM	
1194	PALM	
1195	PINE	12
1196	PALM	
1197	PALM	
1198	MAHOGANY	13
1199	PINE	15
1200	PINE	13
1201	PINE	13
1202	MAHOGANY	6
1203	PALM	
1204	PINE	8
1205	PALM	
1206	PINE	16
1207	PALM	
1208	PINE	10
1209	PINE/FIG	48
1210	PINE	13
1211	PINE	15
1212	PINE	16
1213	PALM	
1214	PINE	20
1215	PINE	7

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BOUNDARY & TOPOGRAPHIC SURVEY

FOR: CYPRESS HOLDING, LLC.

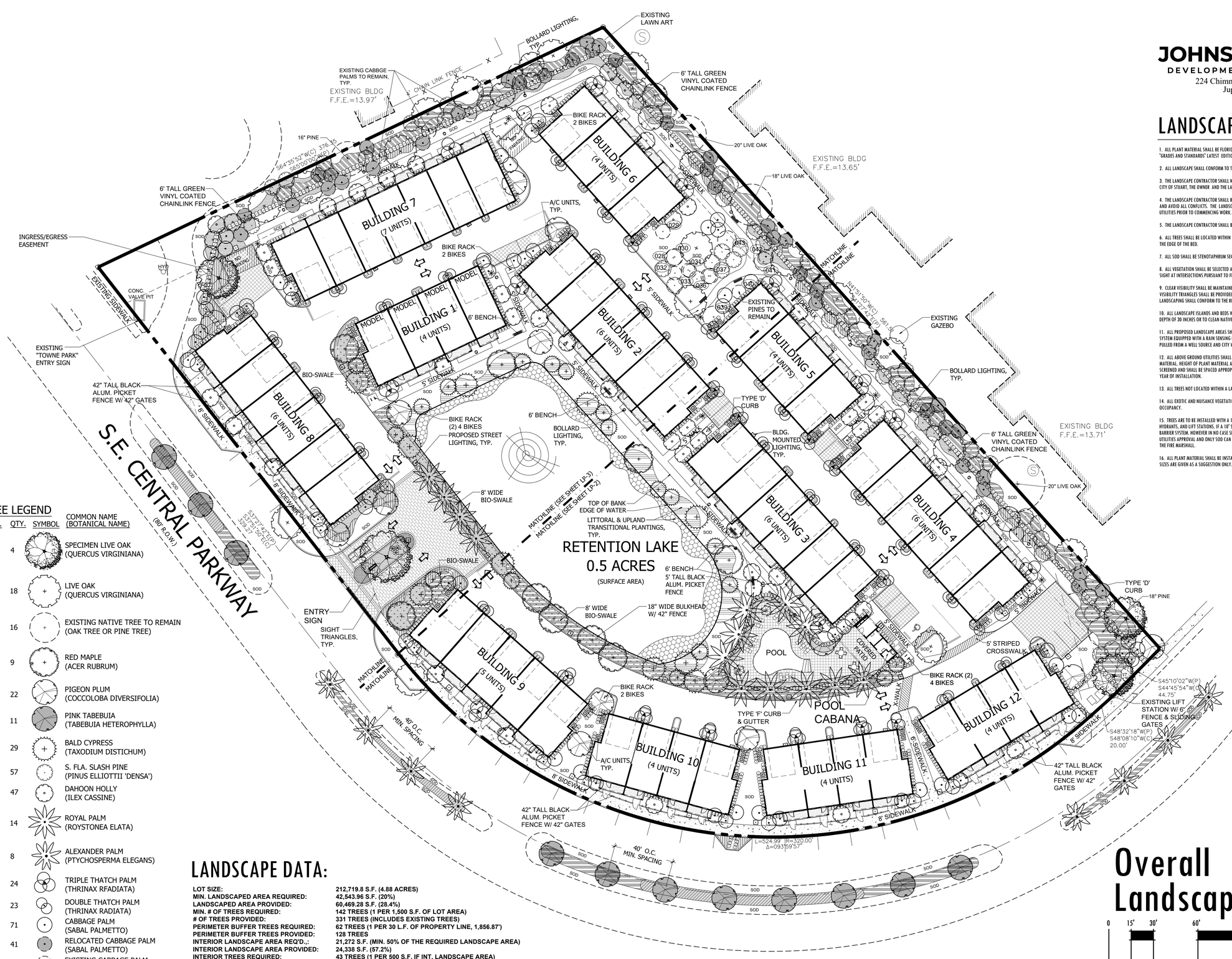
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TREE LEGEND

ABB.	QTY.	SYMBOL	COMMON NAME (BOTANICAL NAME)
QV1	4		SPECIMEN LIVE OAK (QUERCUS VIRGINIANA)
QV	18		LIVE OAK (QUERCUS VIRGINIANA)
-	16		EXISTING NATIVE TREE TO REMAIN (OAK TREE OR PINE TREE)
AR	9		RED MAPLE (ACER RUBRUM)
CD	22		PIGEON PLUM (COCCOLOBA DIVERSIFOLIA)
TH	11		PINK TABEBUIA (TABEBUIA HETEROPHYLLA)
TD	29		BALD CYPRESS (TAXODIUM DISTICHUM)
PE	57		S. FLA. SLASH PINE (PINUS ELLIOTTII 'DENSA')
IC	47		DAHOON HOLLY (ILEX CASSINE)
RE	14		ROYAL PALM (ROYSTONEA ELATA)
PT1	8		ALEXANDER PALM (PTYCHOSPERMA ELEGANS)
TR3	24		TRIPLE THATCH PALM (THRINAX RFADIATA)
TR2	23		DOUBLE THATCH PALM (THRINAX RADIATA)
SP	71		CABBAGE PALM (SABAL PALMETTO)
RSP	41		RELOCATED CABBAGE PALM (SABAL PALMETTO)
-	8		EXISTING CABBAGE PALM (SABAL PALMETTO)

LANDSCAPE DATA:

LOT SIZE:	**212,719.8 S.F. (4.88 ACRES)**
MIN. LANDSCAPED AREA REQUIRED:	**42,543.96 S.F. (20%)**
LANDSCAPED AREA PROVIDED:	**60,469.28 S.F. (28.4%)**
MIN. # OF TREES REQUIRED:	**142 TREES (1 PER 1,500 S.F. OF LOT AREA)**
# OF TREES PROVIDED:	**331 TREES (INCLUDES EXISTING TREES)**
PERIMETER BUFFER TREES REQUIRED:	**62 TREES (1 PER 30 L.F. OF PROPERTY LINE, 1,856.87')**
PERIMETER BUFFER TREES PROVIDED:	**128 TREES**
INTERIOR LANDSCAPE AREA REQ'D.,:	**21,272 S.F. (MIN. 50% OF THE REQUIRED LANDSCAPE AREA)**
INTERIOR LANDSCAPE AREA PROVIDED:	**24,338 S.F. (57.2%)**
INTERIOR TREES REQUIRED:	**43 TREES (1 PER 500 S.F. IF INT. LANDSCAPE AREA)**
INTERIOR TREES PROVIDED:	**203 TREES**
% OF NATIVE TREES PROVIDED:	**100%**
% OF NATIVE SHRUBS PROVIDED:	**100%**

Overall Landscape Plan

0 15' 30' 60' 90 120'

NORTH

REFER TO SHEET LP-4 FOR PLANT LIST, PLANTING DETAILS & SPECIFICATIONS

JOHNSTON GROUP
DEVELOPMENT & CONSTRUCTION
224 Chimney Corner Lane, Suite 3032
Jupiter, Florida 33458
561-691-4552

LANDSCAPE NOTES

1. ALL PLANT MATERIAL SHALL BE FLORIDA NUMBER 1 OR BETTER AS DEFINED BY THE DIVISION OF PLANT INDUSTRY 'GRADES AND STANDARDS' LATEST EDITION.

2. ALL LANDSCAPE SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF STUART RATON CODE.

3. THE LANDSCAPE CONTRACTOR SHALL NOT MAKE ANY SUBSTITUTIONS CHANGES WITHOUT THE AUTHORIZATION OF THE CITY OF STUART, THE OWNER AND THE LANDSCAPE ARCHITECT.

4. THE LANDSCAPE CONTRACTOR SHALL REVIEW THE PROJECT DRAINAGE AND UTILITY PLANS PRIOR TO CONSTRUCTION AND AVOID ALL CONFLICTS. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK.

5. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS.

6. ALL TREES SHALL BE LOCATED WITHIN A MULCH PLANTING BED WITH A MINIMUM OF TWO (2) FEET OF CLEARANCE TO THE EDGE OF THE BED.

7. ALL SOD SHALL BE STENOTAPHRUM SECONDATUM 'FLORITAM' (ST. AUGUSTINE SOD), UNLESS OTHERWISE NOTED.

8. ALL VEGETATION SHALL BE SELECTED AND POSITIONED SO THAT IT DOES NOT PRESENT OBSTRUCTIONS TO THE LINE OF SIGHT AT INTERSECTIONS PURSUANT TO FLORIDA DEPARTMENT OF TRANSPORTATION SIGHT LINE GUIDELINES.

9. CLEAR VISIBILITY SHALL BE MAINTAINED BETWEEN 30" AND 8' WITHIN SIGHT VISIBILITY TRIANGLES. 10' X 10' SIGHT VISIBILITY TRIANGLES SHALL BE PROVIDED AT THE INTERSECTIONS WITH THE PUBLIC RIGHT OF WAY. IN ADDITION, ALL LANDSCAPING SHALL CONFORM TO THE REQUIREMENTS OF FDOT INDEX 546.

10. ALL LANDSCAPE ISLANDS AND BEDS WILL BE FREE OF SHELL ROCK AND CONSTRUCTION DEBRIS, EXCAVATED TO A DEPTH OF 30 INCHES OR TO CLEAN NATIVE SOILS AND FILLED WITH THE SPECIFIED BACKFILL MIXTURE.

11. ALL PROPOSED LANDSCAPE AREAS SHALL RECEIVE 100% OVERLAP COVERAGE FROM A FULLY AUTOMATIC IRRIGATION SYSTEM EQUIPPED WITH A RAIN SENSING DEVICE ACCORDING TO LOCAL AND STATE CODES. IRRIGATION WATER SHALL BE PULLED FROM A WELL SOURCE AND CITY WATER WILL BE USED AROUND BUILDING.

12. ALL ABOVE GROUND UTILITIES SHALL BE SCREENED FROM VIEW ON THREE SIDES WITH AN APPROPRIATE HEDGE MATERIAL HEIGHT OF PLANT MATERIAL AT TIME OF INSTALLATION SHALL BE AT LEAST AS TALL AS THE UTILITY BEING SCREENED AND SHALL BE SPACED APPROPRIATELY IN ORDER TO PROVIDE COMPLETE SCREENING OF UTILITY WITHIN ONE YEAR OF INSTALLATION.

13. ALL TREES NOT LOCATED WITHIN A LANDSCAPE BED SHALL RECEIVE A 4-5' DIA. MULCH RING.

14. ALL EXOTIC AND NUISANCE VEGETATION SHALL BE REMOVED FROM SUBJECT PROPERTY PRIOR TO ANY CERTIFICATE OF OCCUPANCY.

15. TREES ARE TO BE INSTALLED WITH A 10' SEPARATION FROM FROM ANY WATER OR SEWER MAIN AND/OR SERVICE, HYDRANTS, AND LIFT STATIONS. IF A 10' SEPARATION CANNOT BE ACHIEVED, THE TREE CAN BE INSTALLED WITH A ROOT BARRIER SYSTEM. HOWEVER IN NO CASE SHALL A TREE ENCROACH INTO A UTILITY EASEMENT WITHOUT PRIOR BOCA UTILITIES APPROVAL AND ONLY SOD CAN BE INSTALLED WITHIN 7.5' OF A FIRE HYDRANT UNLESS OTHERWISE APPROVED BY THE FIRE MARSHALL.

16. ALL PLANT MATERIAL SHALL BE INSTALLED AT THE HEIGHT, SPREAD AND DBH SHOWN ON THE PLANT LIST, CONTAINER SIZES ARE GIVEN AS A SUGGESTION ONLY.

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Sailfish Cay

751 Central Parkway

Stuart, Florida

Landscape Architect of Record

Jason M. Litterick, RLA
(LA0001677)

Scale: 1" = 30'-0"

Designed:	JML
Drawn:	JML
Approved:	JML
Date:	11/5/21
Job no.	
Revisions:	11/22/21
	1/7/22
	1/24/22
	2/21/22
	3/30/22

Sheet No.

LP-1

JOHNSTON GROUP
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Sailfish Cay

751 Central Parkway Stuart, Florida

EXISTING LAWN ART
BOLLARD LIGHTING, TYP.
EXISTING CABBGE PALMS TO REMAIN, TYP.
EXISTING BLDG F.F.E.=13.97'
4' CHAIN LINK FENCE
16" PINE
S64°35'52"W(C) 376.35'
S63°00'00"W(P)
6' TALL GREEN VINYL COATED CHAINLINK FENCE
INGRESS/EGRESS EASEMENT
HYD
CONC. VALVE PIT
EXISTING SIDEWALK
EXISTING "TOWNE PARK" ENTRY SIGN
42" TALL BLACK ALUM. PICKET FENCE W/ 42" GATES
S.E. CENTRAL PARKWAY
(80' R.O.W.)
S37°27'42"E(P)
S37°51'50"E(C)
329.27'
BUILDING 7 (7 UNITS)
BUILDING 6 (4 UNITS)
BUILDING 1 (4 UNITS)
BUILDING 8 (6 UNITS)
BUILDING 2 (6 UNITS)
BUILDING 5 (4 UNITS)
BUILDING 3 (6 UNITS)
BIKE RACK 2 BIKES
A/C UNITS, TYP.
HP PARKING
NO PARKING
MODEL
6' BENCH
5' SIDEWALK
8' SIDEWALK
BIO-SWALE
BIKE RACK (2) 4 BIKES PROPOSED STREET LIGHTING, TYP.
8' WIDE BIO-SWALE
ENTRY SIGN
SIGHT TRIANGLES, TYP.
MATCHLINE (SEE SHEET LP-3)
MATCHLINE (SEE SHEET LP-2)
TOP OF BANK
EDGE OF WATER
LITTORAL & UPLAND TRANSITIONAL PLANTINGS, TYP.
RETENTION LAKE
0.5 ACRES
(SURFACE AREA)
6' BENCH
5' TALL BLACK ALUM. PICKET FENCE
18" WIDE BULKHEAD W/ 42" FENCE
6' TALL GREEN VINYL COATED CHAINLINK FENCE
EXISTING BLDG F.F.E.=13.65'
20" LIVE OAK
18" LIVE OAK
EXISTING PINES TO REMAIN
TYPE 'D' CURB
BLDG. MOUNTED LIGHTING, TYP.
BOLLARD LIGHTING, TYP.
POOL
COVERED PATIO
MATCHLINE
MATCHLINE
N41°51'50"W(C) 561.50'
N41°27'42"E(P)
SOD

REFER TO SHEET LP-4 FOR PLANT LIST, PLANTING DETAILS & SPECIFICATIONS

Landscape Plan

0 10' 20' 40' 60' 80'

NORTH

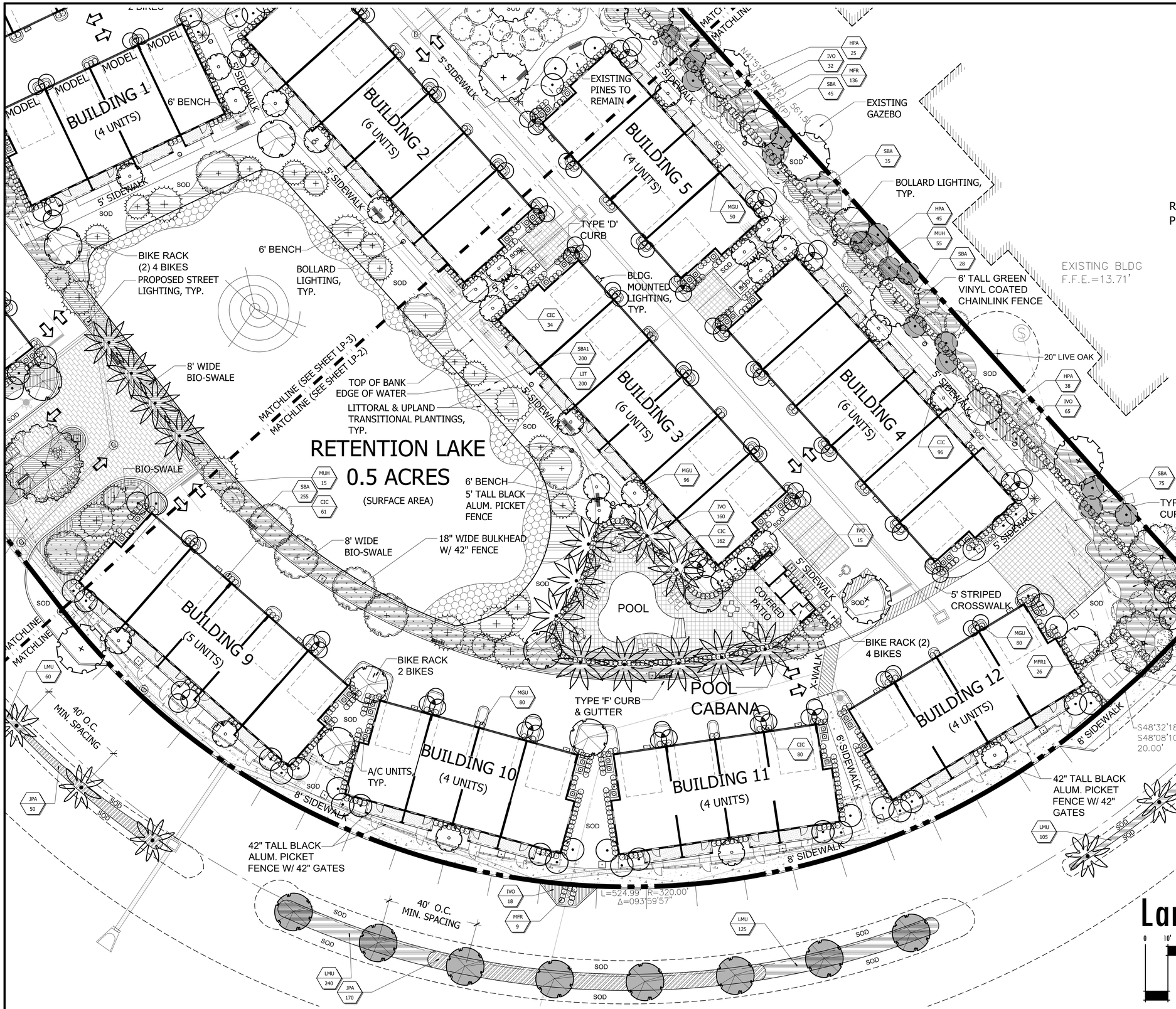
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	1/24/22
	2/21/22
	3/30/22

Sheet No.
LP-2



REFER TO SHEET LP-4 FOR PLANT LIST, PLANTING DETAILS & SPECIFICATIONS

Landscape Plan

0 10' 20' 40' 60' 80'

NORTH

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	3/30/22

Sheet No.
LP-3

PLANT LIST

	SYM	QTY.	BOTANICAL NAME	COMMON NAME	HEIGHT	SPR.	NOTES:
* V	QV	18	QUERCUS VIRGINIANA	LIVE OAK	12' O.A., 2.5" DBH	6' MIN.	FULL & THICK, SINGLE TRUNK
* V	QV1	4	QUERCUS VIRGINIANA	LIVE OAK	18-20' O.A.,5" DBH	8' MIN.	FULL & THICK, SINGLE TRUNK SPECIMEN
* V	IC	47	ILEX CASSINE	DAHOON HOLLY	12' O.A., 2.5" DBH	6' MIN.	FULL & THICK
* V	TD	29	TAXODIUM DISTICHUM	BALD CYPRESS	8-12' O.A.	4-6'	FULL & THICK, STAGGER HEIGHTS EVENLY
* V	CD	22	COCCOLOBA DIVERSIFOLIA	PIGEON PLUM	12' O.A., 2.5" CAL.	5' MIN.	FULL & THICK, SINGLE TRUNK
* V	PE	57	PINUS ELLIOTTII 'DENSA'	S. FLA. SLASH PINE	12' O.A., 2.5" CAL.	6' MIN.	FULL & THICK, SINGLE TRUNK
* V	SP	71	SABAL PALMETTO	CABBAGE PALM (HURRICANE CUT)	8'-22' C.T.	-	FULL & THICK, STAGGER HEIGHTS, SLICK
* V	RSP	41	SABAL PALMETTO	RELOCATED CABBAGE PALM	VARY	-	FULL & THICK
* V	AR	9	ACER RUBRUM	RED MAPLE	12' O.A., 2.5" CAL.	6' SPD.	FULL & THICK
* V	TR2	23	THRINAX RADIATA	FL. THATCH PALM	12' O.A.	-	FULL & THICK, DOUBLE TRUNK
M	TR3	24	THRINAX RADIATA	FL. THATCH PALM	12' O.A.	-	FULL & THICK, TRIPLE TRUNK
* V	RE	14	ROYSTONEA ELATA	FL. ROYAL PALM	10' G.W.	-	FULL & THICK, MATCHED HEIGHTS
M	PT1	8	PTYCHOSPERMA ELEGANS	ALEXANDER PALM	16' O.A. (10' C.T.)	-	FULL & THICK, SINGLE TRUNK MATCHED
V	TH	11	TABEBUIA HETEROPHYLLA	PINK TABEBUIA	12-14' O.A.	5' SPD.	FULL & THICK

	KEY	QTY.	BOTANICAL NAME	COMMON NAME	HEIGHT	SPR.	O.C.	REMARKS
* V	CIC	709	CHRYSOBALANUS ICACO 'RED TIP'	RED TIP COCOPLUM	#3, 24" MIN.	18" MIN.	24"	FULL & THICK TO BASE
* V	MUH	605	MUHLENBERGIA CAPILLARIS	MUHLY GRASS	#3, 16" O.A.	16"	30"	FULL & THICK TO BASE
* V	MFR	392	MYRCIANTHES FRAGRANS	SIMPSON'S STOPPER	#7, 36" O.A.	24"	30"	FULL & THICK TO BASE
* V	MFR1	26	MYRCIANTHES FRAGRANS	SIMPSON'S STOPPER	6' O.A.	30"	30"	FULL & THICK TO BASE
* V	IVO	663	ILEX VOMITORIA	DWF. YAUPON HOLLY	#3, 16" O.A.	16"	24"	FULL & THICK TO BASE
* V	SBA	778	SPARTINA BAKERI	SAND CORD GRASS	#3, 24" O.A.	18"	36"	FULL & THICK TO BASE
* V	SBA1	350	SPARTINA BAKERI	SAND CORD GRASS	#1, 16" O.A.	12"	36"	FULL & THICK TO BASE
* V	MGU	516	MYRSINE GUIANENSIS	MYRSINE	#3, 24" O.A.	18"	24"	FULL & THICK TO BASE
* V	MIM	130	MIMOSA STRIGILLOSA	SUNSHINE MIMOSA	#1, FULL POT	12"	12"	FULL & THICK TO BASE
* V	HPA	351	HAMELIA PATENS	FIREBUSH	#3, 24" O.A.	18"	36"	FULL & THICK TO BASE
* V	SRE	3	SERENOA REPENS	SAW PALMETTO	#15, 36" O.A.	36"	A.S.	FULL & THICK TO BASE, CLUMP
M	LMU	665	LIRIOPE MUSCARI	GREEN LIRIOPE	#3, 14" O.A.	14"	18"	FULL & THICK TO BASE
M	JPA	335	JUNIPERUS CHINENSIS 'PARSONII'	PARSON'S JUNIPER	#3, 14" O.A.	16"	30"	FULL & THICK TO BASE
* V	LIT	350	LITTORAL PLANTS	SPECIES BELOW	LINERS	-	36"	FULL & THICK TO BASE

LITTORAL PLANTS

QTY.	BOTANICAL NAME	COMMON NAME	SIZE	O.C.	REMARKS
25	THALIA GENICULATA	FIRE FLAG	LINER, 24" O.A.	36"	FULL & THICK
175	PONTEDERIA CORDATA	PICKERELL WEED	LINER, 18" O.A.	36"	FULL & THICK
150	JUNCUS EFFUSUS	SOFT RUSH	LINER, 12" O.A.	36"	FULL & THICK

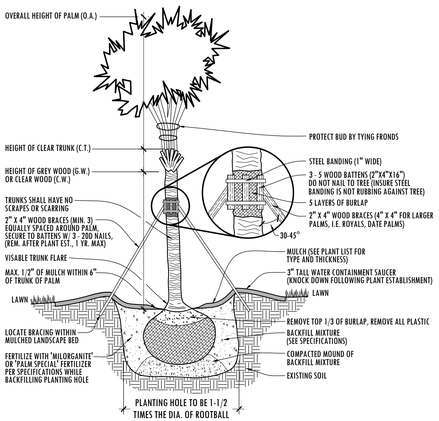
* ASTERISK DENOTES NATIVE PLANT MATERIAL
V INDICATES VERY DROUGHT TOLERANT PLANT MATERIAL
M INDICATES MODERATELY DROUGHT TOLERANT PLANT MATERIAL

SOD: ST. AUGUSTINE 'FLORITAM'
MULCH: 3" SHREDDED MELALEUCA MULCH (OR APPROVED RECYCLED MULCH) TO BE APPLIED TO ALL PLANTING BEDS.

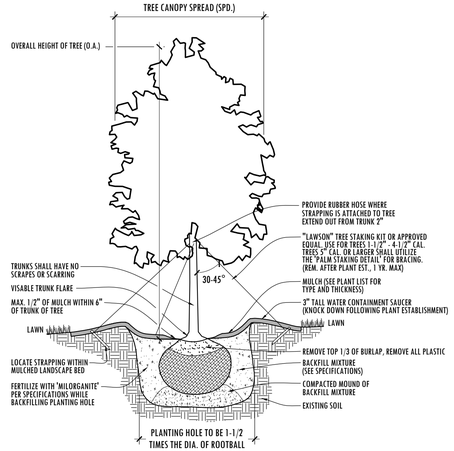
IRRIGATION NOTE:
ALL NEW LANDSCAPE AREAS SHALL BE RECEIVE 100% OVERLAP COVERAGE FROM A FULLY AUTOMATIC IRRIGATION SYSTEM EQUIPPED WITH A RAIN SENSOR.

IRRIGATION WATER SOURCE: LAKE W/ RECHARGE WELL

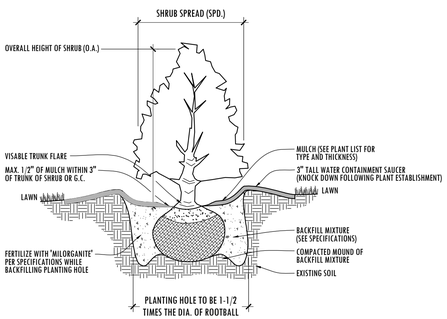
PLANTING DETAILS



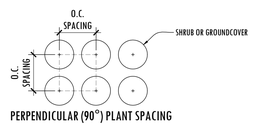
PALM PLANTING DETAIL



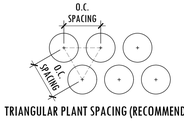
TREE PLANTING DETAIL



SHRUB & GROUNDCOVER PLANTING DETAIL



PERPENDICULAR (90°) PLANT SPACING



TRIANGULAR PLANT SPACING (RECOMMENDED)

PLANTING SPECIFICATIONS

1. SCOPE OF WORK

LANDSCAPE CONTRACT WORK INCLUDES, BUT IS NOT LIMITED TO, SOIL PREPARATION, FINE OR FINISH GRADING, FURNISHING AND INSTALLING PLANT MATERIAL, WATERING, STAKING, GUYING AND MULCHING.

ALL LABOR AND MATERIAL FOR SOIL AMENDMENTS AND FERTILIZER THAT IS REQUIRED TO INSURE THE SUCCESSFUL ESTABLISHMENT AND SURVIVAL OF THE PROPOSED VEGETATION, AS WELL AS ALL THE COST FOR THE REMOVAL OF UNSUITABLE OR EXCESS BACKFILL MATERIAL, SHALL BE INCLUDED IN THE CONTRACTOR'S BID TO PERFORM THE WORK REPRESENTED IN THIS PLAN SET.

2. QUALITY ASSURANCE

LANDSCAPE CONTRACTOR MUST BE REGULARLY ENGAGED IN THE INSTALLATION OF LIVING PLANT MATERIAL. LABOR CREWS SHALL BE CONTROLLED AND DIRECTED BY A LANDSCAPE FOREMAN WELL VERSED IN LANDSCAPE INSTALLATION, PLANT MATERIALS, READING PLANS AND COORDINATION BETWEEN THE JOB AND NURSERY.

THE LANDSCAPE CONTRACTOR AND IRRIGATION CONTRACTOR SHALL REVIEW LAYOUT AND SCHEDULING PRIOR TO INSTALLATION OF MATERIAL. MINOR ADJUSTMENT TO IRRIGATION DESIGN MAY BE MADE IN RESPONSE TO THE NEEDS OF SPECIFIC PLANT MATERIAL. THE LANDSCAPE ARCHITECT MUST BE NOTIFIED OF SUCH CHANGES.

3. MATERIALS

PLANT SIZE AND QUALITY
PLANT SPECIES AND SIZES SHALL CONFORM TO THOSE INDICATED ON THE DRAWINGS, NOMENCLATURE SHALL CONFORM TO STANDARD PLANT NAMES, 1942 EDITION. ALL NURSERY STOCK SHALL BE IN ACCORDANCE WITH GRADES AND STANDARDS FOR NURSERY PLANTS PARTS I & II, LATEST EDITION PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, UNLESS SPECIFIED OTHERWISE. ALL PLANTS SHALL BE FLORIDA GRADE NUMBER 1 OR BETTER AS DETERMINED BY THE FLORIDA DIVISION OF PLANT INDUSTRY. TIGHTLY KNIT PLANT, SO TRAINED OR FAVORED IN ITS DEVELOPMENT THAT FIRST APPEARANCE IS UNQUESTIONABLE AND IT IS OUTSTANDINGLY SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY. ALL PLANTS SHALL BE FRESHLY DUG, SOUND, HEALTHY, VIGOROUS, WELL BRANCHED AND FREE OF DISEASE AND INSECT EGGS AND LARVAE AND SHALL HAVE ADEQUATE ROOT SYSTEMS. TREES AND PALMS FOR PLANTING ROWS SHALL BE UNIFORM IN SIZE AND SHAPE. ALL MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT. THE PLANTS FURNISHED SHALL BE NORMAL FOR THE VARIETY AND FLORIDA NUMBER 1. PLANTS SHALL BE PRUNED PRIOR TO DELIVERY ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. ALL PLANTS SHALL BE FREE OF WEEDS OR ANY OTHER OBJECTIONABLE VEGETATION.

ALL CONTAINER GROWN MATERIAL SHALL BE HEALTHY, VIGOROUS, WELL-ROOTED PLANTS AND ESTABLISHED IN THE CONTAINER IN WHICH THEY ARE SOLD. THE PLANTS SHALL HAVE TOPS OF GOOD QUALITY AND BE IN A HEALTHY GROWING CONDITION.

CONTAINER GROWN PLANTS SHALL HAVE A DEVELOPED ROOT STRUCTURE SO THAT THE ROOT MASS STAYS IN TACT WHEN REMOVED FROM CONTAINER. IN NO CASE SHALL THE PLANT CONTAIN CIRCLING ROOTS NOR BE ROOT-BOUND.

QUANTITIES
ALL QUANTITIES INDICATED ON THE PLANT LIST ARE INTENDED AS A GUIDE FOR THE BIDDERS AND DOES NOT RELIEVE THE BIDDER OF HIS RESPONSIBILITY TO DO A COMPREHENSIVE PLANT TAKE OFF. SHALL A DISCREPANCY OCCUR BETWEEN THE BIDDER'S TAKE OFF AN THE PLANT LIST QUANTITY, THE LANDSCAPE ARCHITECT IS TO BE NOTIFIED FOR CLARIFICATION PRIOR TO THE SUBMISSION OF THE BID.

MULCH
MULCH SHALL BE A SHREDDED VARIETY AS SPECIFIED IN THE PLANT LIST. ALL MULCH IS TO BE APPLIED TO A DEPTH OF 3" EXCEPT FOR THOSE SPECIFIC SITUATIONS SHOWN BELOW IN SECTION 4 AND IN PLANTING DETAILS.

FERTILIZER
FERTILIZER IN BACKFILL MIXTURE FOR ALL PLANTS SHALL CONSIST OF 'MILORGANITE' ACTIVATED SLUDGE MIXED WITH THE BACKFILL AT A RATE OF NOT LESS THAN 50 LBS. PER CUBIC YARD.

FERTILIZER FOR TREES AND SHRUBS MAY BE TABLET FORM OR GRANULAR. GRANULAR FERTILIZER SHALL BE UNIFORM IN COMPOSITION, DRY AND FREE-FLOWING. THIS FERTILIZER SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL UNOPENED BAGS, EACH BEARING THE MANUFACTURER'S STATEMENT OF ANALYSIS. FERTILIZE ALL NEW PLANTINGS PER RATES SHOWN BELOW:

TREES:
FERTILIZE NEW TREES WITH 'MILORGANITE' AT THE FOLLOWING RATES:
- 8" AND SMALLER: 2-4 LBS.
- 8'-12" TALL: 4-6 LBS.
- 12" AND TALER: 6-8 LBS.

(3 CUPS = 1 LB.)

SHRUBS:
FERTILIZE NEW SHRUBS AND ACCENTS WITH 'MILORGANITE' AT THE FOLLOWING RATES:
- 4-6" POTS: | CUP
- 1 GAL.: | CUP
- 3 GAL.: 1 CUP
- 7-10 GAL.: 2 CUPS
- 15 GAL. AND GREATER: 3 CUPS

PALM TREES:
FERTILIZE NEW PALM TREES WITH A "PALM SPECIAL" FERTILIZER IN SLOW RELEASE FORM. FERTILIZER SHALL CONTAIN AN ADDITIONAL MAGNESIUM AND MICRO-NUTRIENT AMENDMENT

SOIL
PLANTING SOIL SHALL BE SANDY LOAM AND SHALL CONTAIN A 25% MINIMUM AMOUNT OF DECOMPOSED ORGANIC MATTER. PLANTING SOIL SHALL BE FREE OF CLAY, STONES, PLANTS, ROOTS AND OTHER FOREIGN MATERIALS WHICH MIGHT BE A HINDRANCE TO PLANTING OPERATIONS OR BE DETRIMENTAL TO GOOD PLANT GROWTH. SOIL SHALL BE DELIVERED IN A LOOSE FRIABLE CONDITION AND APPLIED IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS.

ALL SHRUBS, TREES AND GROUND COVER WILL HAVE IMPROVED SOIL AS PER PLANTING SOIL NOTES. THE SOILS SHALL BE PLACED IN THE HOLE DURING PLANTING. TOP DRESSING ONLY IS NOT ACCEPTABLE.

DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING. ALL TREES SHALL BE SPIKED IN UTILIZING WATER AND A TREE BAR.

WATER
WATER FOR PLANTING WILL BE AVAILABLE AT THE SITE AND WILL BE PROVIDED BY THE OWNER. LANDSCAPE CONTRACTOR SHALL NOT ASSUME THAT THE IRRIGATION SYSTEM WILL BE OPERATIONAL AT THE TIME OF PLANTING. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO PROVIDE ALL THE REQUIRED WATER NECESSARY TO MAINTAIN THE PLANT MATERIAL IN A HEALTHY GROWING CONDITION THE WATERING MAY INCLUDE DEEP WATERING OF TREES ANT THE WATERING OF SHRUB AND GROUND COVER AREAS. ANY PLANT MATERIALS THAT DIE OR THAT ARE NOT IN A HEALTHY GROWING CONDITION DUE TO LACK OF WATER SHALL BE REPLACED BY THE LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

4. EXECUTION

FIELD GROWN TREES AND PALMS PREVIOUSLY ROOT PRUNED SHALL OBTAIN A ROOT BALL WITH SUFFICIENT ROOTS FOR CONTINUED GROWTH WITHOUT RESULTING SHOCK.

CONTRACTOR SHALL NOT MARK OR SCAR TRUNK IN ANY FASHION.

PLANTS SHALL BE WATERED AS NECESSARY OR WITHIN 24 HOURS AFTER NOTIFICATION BY THE LANDSCAPE ARCHITECT.

THE LOCATIONS OF PLANTS, AS SHOWN IN THESE PLANS, ARE APPROXIMATE. THE FINAL LOCATIONS MAY BE ADJUSTED TO ACCOMMODATE UNFORESEEN FIELD CONDITIONS. MAJOR ADJUSTMENTS TO THE LAYOUT ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT.

ALL PLASTIC FABRIC SHALL BE REMOVED FROM PLANT MATERIAL AT TIME OF INSTALLATION.

ALL TREES MUST BE STAKED AS SHOWN ON THE PLANTING DETAILS WITHIN 24 HOURS OF PLANTING. STAKES TO REMAIN FOR A MINIMUM OF 9 MONTHS, BUT NO LONGER THAN 18 MONTHS. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF THE STAKES.

ALL TREES MUST BE PRUNED AS PER LANDSCAPE ARCHITECT'S DIRECTION. SABAL PALMS MAY BE HURRICANE CUT.

ALL SHRUBS, TREES AND GROUND COVER WILL HAVE IMPROVED SOIL AS PER PLANTING SOIL NOTES. THE SOILS SHALL BE PLACED IN THE HOLE DURING PLANTING. TOP DRESSING ONLY IS NOT ACCEPTABLE.

DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING. ALL TREES SHALL BE SPIKED IN UTILIZING WATER AND A TREE BAR.

AFTER FINAL SETTLING OF BALLED AND BURLAPED PLANTS, LOOSEN BURLAP WRAPPING EXPOSING THE TOP OF THE ROOTBALL, LEAVING THE BALL UNBROKEN. REMOVE EXCESS AMOUNTS OF BURLAP TO ELIMINATE VOIDS WHICH MAY BE CAUSED UPON DECOMPOSITION.

CONTAINER GROWN PLANTS SHALL, WHEN DELIVERED, SHALL HAVE SUFFICIENCY GROWTH TO HOLD EARTH INTACT WHEN REMOVED FROM CONTAINER AND SHALL NOT BE ROOT BOUND. PLANT PITS FOR CONTAINER MATERIALS SHALL BE FORMED FLAT ON THE BOTTOM TO AVOID AIR POCKETS AT THE BOTTOM OF ROOT BALLS AND CONTAINERS SHALL BE REMOVED CAREFULLY TO PREVENT DAMAGE TO THE PLANT OR ROOT SYSTEMS.

TEST TREE PITS WITH WATER BEFORE PLANTING TO ASSURE PROPER DRAINAGE PERCOLATION IS AVAILABLE. PITS WHICH ARE FOUND NOT TO BE ADEQUATELY DRAINING SHALL BE EXCAVATED TO A A DEPTH SUFFICIENT FOR DRAINAGE AND BACKFILLING WITH GRAVEL OR CRUSHED ROCK. NO ALLOWANCES WILL BE MADE FOR LOST PLANTS DUE TO IMPROPER DRAINAGE.

PLANTING BED PREPARATION
ALL PLANTING BEDS SHALL BE PROPERLY PREPARED PRIOR TO THE COMMENCEMENT OF ANY PLANTING. PLANTING AREAS, INCLUDING LAWNS SHALL BE FREE OF ALL WEEDS AND NUISANCE VEGETATION. IF TORPEDO GRASS (PANICUM REPENS) IS PRESENT OR ENCOUNTERED DURING PLANTING, THE LANDSCAPE CONTRACTOR SHALL STOP ALL PLANTING UNTIL IT CAN BE DEMONSTRATED THAT IT HAS BEEN COMPLETELY REMOVED OR ERADICATED. THERE SHALL BE NO EXCEPTIONS TO THIS PROVISION.

ALL LANDSCAPE ISLANDS AND BEDS WILL BE FREE OF SHELL ROCK AND CONSTRUCTION DEBRIS AND WILL BE EXCAVATED TO A DEPTH OF 30 INCHES OR TO CLEAN, NATIVE SOIL AND FILLED WITH THE SPECIFIED BACKFILL MIXTURE.

PLANTING TREES

EXCAVATE PIT AS PER PLANTING DETAILS. COMPACT LAYER OF TOPSOIL IN PIT WITH A SLIGHTLY DISHED GRADE TO CENTER.

BACKFILL AROUND BALL WITH TOPSOIL AND SLIGHTLY COMPACT, WATER THOROUGHLY AS LAYERS ARE PLACED TO ELIMINATE VOIDS AND AIR POCKETS. BUILD A 6" HIGH BERM OF TOPSOIL BEYOND EDGE OF EXCAVATION. APPLY 3" (AFTER SETTLEMENT) OF MULCH.

PRUNE TREE TO REMOVE DAMAGED BRANCHES, IMPROVE NATURAL SHAPE AND THIN OUT STRUCTURE. DO NOT REMOVE MORE THAN 15% OF BRANCHES. DO NOT PRUNE BACK TERMINAL LEADER.

GUY AND STAKE TREE IN ACCORDANCE WIT THE STAKING DETAILS IMMEDIATELY AFTER PLANTING.

PLANTING SHRUBS

LAYOUT SHRUBS TO CREATE A CONTINUOUS SMOOTH FRONT LINE AND FILL IN BEHIND.

EXCAVATE PIT OR TRENCH TO 1-1/2 TIMES THE DIAMETER OF THE BALLS OR CONTAINERS OR 1'-0" WIDER THAN THE SPREAD OF ROOTS AND 3" DEEPER THAN REQUIRED FOR POSITIONING AT PROPER HEIGHT. COMPACT A LAYER OF TOPSOIL IN BOTTOM BEFORE PLACING PLANTS. BACKFILL AROUND PLANTS WITH PLANTING MIXTURE, COMPACTED TO ELIMINATE VOIDS AND AIR POCKETS. FORM GRADE SLIGHTLY DISHED AND BERMED AT EDGES OF EXCAVATION. APPLY 3" OF MULCH.

PRUNE SHRUBS TO REMOVE DAMAGED BRANCHES, IMPROVE NATURAL SHAPE AND THIN OUT STRUCTURE. DO NOT REMOVE MORE THAN 15% OF BRANCHES.

PLANTING GROUND COVER

LOOSEN SUBGRADE TO DEPTH OF 4" IN AREAS WHERE TOPSOIL HAS BEEN STRIPPED AND SPREAD SMOOTH.

SPACE PLANTS AS OTHERWISE INDICATED. DIG HOLES LARGE ENOUGH TO ALLOW SPREADING OF ROOTS. COMPACT BACKFILL TO ELIMINATE VOIDS AND LEAVE GRADE SLIGHTLY DISHED AT EACH PLANT. WATER THOROUGHLY. APPLY 3" OF MULCH OVER ENTIRE PLANTING BED, LIFTING PLANT FOLIAGE ABOVE MULCH. DO NOT PLACE MULCH AROUND BASE OF TRUNK/STEM.

PLANTING SOD

SODDING: SOD TYPE SPECIFIED ON PLANT LIST SHALL BE MACHINE STRIPPED NOT MORE THAN 24 HOURS PRIOR TO LAYING. SOD SHALL BE FIRM, TOUGH TEXTURE, HAVING A COMPACT GROWTH OF GRASS WITH GOOD ROOT DEVELOPMENT, AND SHALL CONTAIN NO BERMUDA GRASS, WEEDS OR ANY OTHER OBJECTIONABLE VEGETATION.

LOOSEN SUBGRADE TO DEPTH OF 4" AND GRADE WITH TOPSOIL EITHER PROVIDED ON SITE OR IMPORTED TO FINISH DESIGN ELEVATIONS. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO FINISH GRADE ALL LANDSCAPE AREAS, ELIMINATING ALL BUMPS, DEPRESSIONS, STICKS, STONES AND OTHER DEBRIS. ROLL PREPARED LAWN SURFACE. WATER THOROUGHLY, BUT DO NOT CREATE MUDDY SOIL CONDITION.

FERTILIZE SOIL AT THE RATE OF APPROXIMATELY 10 LBS. PER 1,000 S.F. SPREAD FERTILIZER OVER THE AREA TO RECEIVE GRASS BY USING AN APPROVED DISTRIBUTION DEVICE CALIBRATED TO DISTRIBUTE THE APPROPRIATE QUANTITY. DO NOT FERTILIZE WHEN WIND VELOCITY EXCEEDS 15 M.P.H. THOROUGHLY MIX FERTILIZER INTO THE TOP 2" OF TOPSOIL.

LAY SOD STRIPS WITH TIGHT JOINTS, DO NOT OVERLAP, STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES. WORK SIFTED SOIL MIX INTO MINOR CRACKS BETWEEN PIECES OF SOD AND REMOVE EXCESS SOIL DEPOSITS FROM SODDED AREAS. SOD ON SLOPES GREATER THAN 3:1 SHALL BE STAKED IN PLACE. ROLL OR STAMP LIGHTLY AND WATER THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING.

5. MISCELLANEOUS LANDSCAPE WORK

LANDSCAPE MAINTENANCE
MAINTAIN LANDSCAPE WORK IMMEDIATELY AFTER PLANTING AND UNTIL FINAL ACCEPTANCE IS ISSUED BY THE OWNER'S REPRESENTATIVE. INCLUDE WATERING, WEEDING, CULTIVATING, RESTORATION OF GRADE, MOWING AND TRIMMING GRASS, PRUNING TREES AND SHRUBS, PROTECTION FROM INSECTS AND DISEASES, FERTILIZING AND SIMILAR OPERATIONS AS NEEDED TO INSURE NORMAL GROWTH AND GOOD HEALTH FOR LIVE PLANT MATERIAL. SETTLED PLANTS SHALL BE RESET TO PROPER GRADE, PLANTING SAUCERS RESTORED, AND DEFECTIVE WORK CORRECTED.

IN THE EVENT OF SERIOUS DAMAGE FROM INSECTS OR DISEASE PRIOR TO FINAL ACCEPTANCE, THE PLANTS SHALL BE TREATED BY PREVENTATIVE OR REMEDIAL MEASURES APPROVED FOR GOOD HORTICULTURAL PRACTICE AT NO ADDITIONAL COST TO THE OWNER.

CLEAN UP
THE LANDSCAPE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR DEBRIS CAUSED BY HIS CREWS DURING THE PERFORMANCE OF THE WORK. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL PROMPTLY REMOVE ALL WASTE MATERIALS, DEBRIS, UNUSED PLANT MATERIAL, EMPTY PLANT CONTAINERS AND ALL EQUIPMENT FROM THE PROJECT SITE.

ANY SOIL, PEAT OR SIMILAR MATERIAL WHICH HAS BEEN BROUGHT ONTO ANY PAVED AREAS SHALL BE REMOVED PROMPTLY KEEPING THESE AREAS CLEAN AS THE WORK PROGRESSES. UPON COMPLETION OF THE PLANTING, ALL EXCESS SOIL, STONES AND DEBRIS WHICH HAS NOT BEEN PREVIOUSLY CLEANED UP SHALL BE REMOVED FROM THE SITE.

INSPECTION & ACCEPTANCE
THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT UPON COMPLETION OF THE WORK TO REQUEST A FINAL INSPECTION OF THE INSTALLATION AND PLANT MATERIALS. THE LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE WILL NOTIFY THE LANDSCAPE CONTRACTOR OF ANY DEFICIENCIES VIA A 'PUNCH LIST' WHICH SHALL BE PROMPTLY CORRECTED BY THE LANDSCAPE CONTRACTOR. CONDITIONAL LANDSCAPE ACCEPTANCE OF ALL PLANT MATERIAL AND WORKMANSHIP WILL BE GIVEN IN WRITING BY THE LANDSCAPE ARCHITECT AFTER ALL 'PUNCH LIST' ITEMS HAVE BEEN CORRECTED AND ANY PLANT REPLACEMENTS MADE. THIS ACCEPTANCE WILL BEGIN THE WARRANTEE PERIOD. DEFICIENCIES NOTED AFTER THE CONDITIONAL LANDSCAPE ACCEPTANCE SHALL BE RECTIFIED DURING THE WARRANTEE PERIOD AND PRIOR TO FINAL LANDSCAPE ACCEPTANCE.

GUARANTEE AND REPLACEMENT
ALL PLANT MATERIAL AND WORKMANSHIP SHALL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR FOR A PERIOD OF SIX (6) MONTHS FROM THE DATE OF CONDITIONAL LANDSCAPE ACCEPTANCE BY THE LANDSCAPE ARCHITECT. ANY PLANT MATERIAL OR WORKMANSHIP THAT IS DEFICIENT OR HAS DIED SHALL BE REPLACED AT THE SAME SPECIFICATION NOTED IN THE APPROVED LANDSCAPE PLANS. REPLACEMENTS SHALL BE MADE BY THE LANDSCAPE CONTRACTOR WITHIN TWO (2) WEEKS OF NOTIFICATION BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER. WARRANTEES OF REPLACEMENT MATERIAL SHALL BE SIX (6) MONTHS FROM THE DATE OF REPLACEMENT INSTALLATION. DEATH OR DAMAGE RESULTING FROM LIGHTNING, VANDALISM OR AUTOMOBILES OR BY NEGLIGENCE BY THE OWNER SHALL NOT BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. UNLESS OTHERWISE ARRANGED WITH THE OWNER, THE CONTRACTOR IS RESPONSIBLE FOR GENERAL PLANT MAINTENANCE INCLUDING WATERING AND MOWING UP UNTIL THE DATE OF CONDITIONAL ACCEPTANCE.

PLANT MATERIAL SUBSTITUTION

THERE WILL BE NO SUBSTITUTION OF PLANT MATERIAL UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT AND/OR OWNER. THIS INCLUDES SPECIES AND SIZE OF PLANT MATERIAL.

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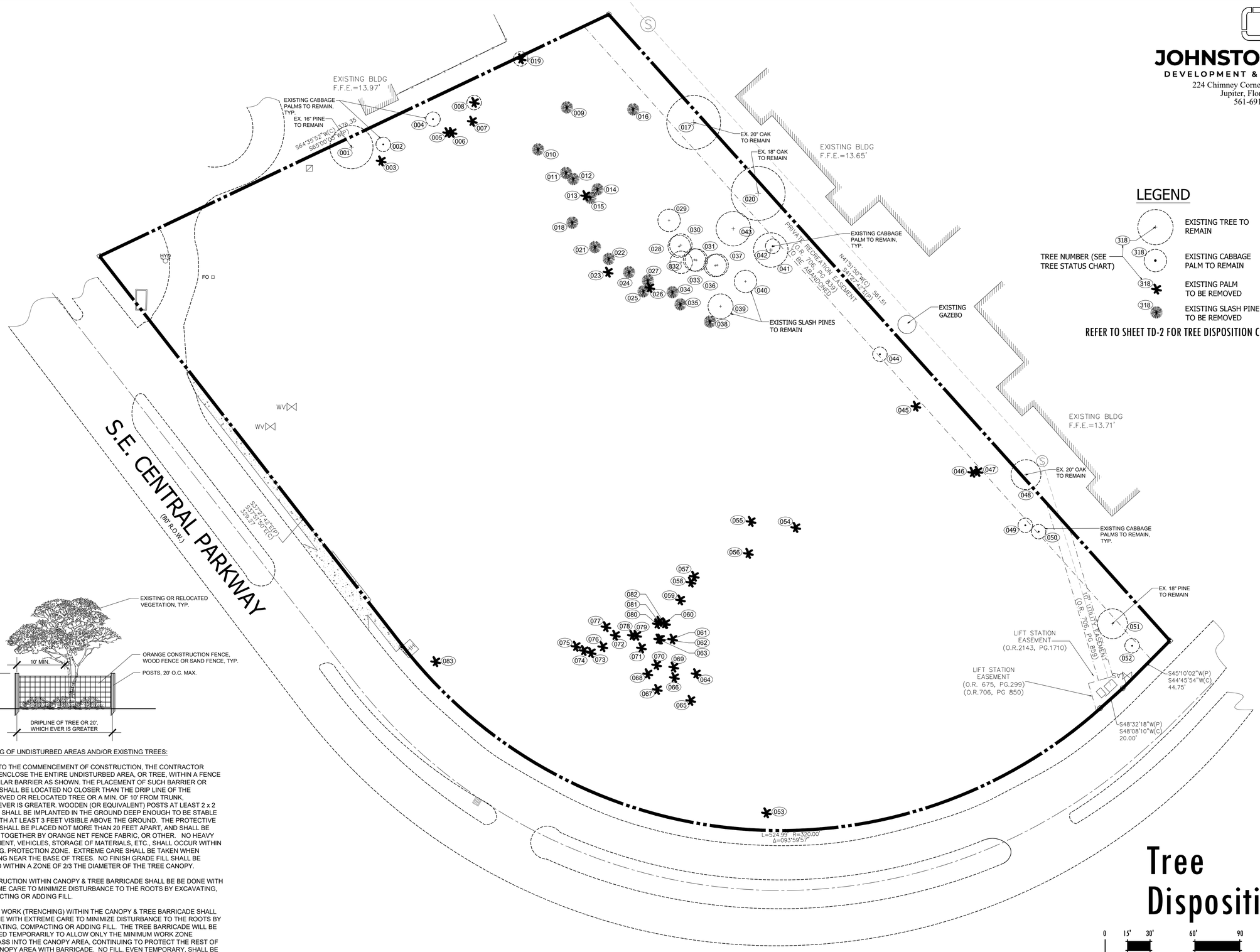
Landscape Architect of Record

Jason M. Litterick, RLA
(LA0001677)

Scale: Not to Scale

Designed:	JML
Drawn:	JML
Approved:	JML
Date:	11/5/21
Job no.	
Revisions:	11/22/21
	1/7/22
	1/24/22
	2/21/22
	3/30/22

Sheet No.
LP-4



LEGEND

- EXISTING TREE TO REMAIN
- TREE NUMBER (SEE TREE STATUS CHART)
- EXISTING CABBAGE PALM TO REMAIN
- EXISTING PALM TO BE REMOVED
- EXISTING SLASH PINE TO BE REMOVED

REFER TO SHEET TD-2 FOR TREE DISPOSITION CHART

FENCING OF UNDISTURBED AREAS AND/OR EXISTING TREES:

PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL ENCLOSE THE ENTIRE UNDISTURBED AREA, OR TREE, WITHIN A FENCE OR SIMILAR BARRIER AS SHOWN. THE PLACEMENT OF SUCH BARRIER OR FENCE SHALL BE LOCATED NO CLOSER THAN THE DRIP LINE OF THE PRESERVED OR RELOCATED TREE OR A MIN. OF 10' FROM TRUNK, WHICHEVER IS GREATER. WOODEN (OR EQUIVALENT) POSTS AT LEAST 2 x 2 INCHES SHALL BE IMPLANTED IN THE GROUND DEEP ENOUGH TO BE STABLE AND WITH AT LEAST 3 FEET VISIBLE ABOVE THE GROUND. THE PROTECTIVE POSTS SHALL BE PLACED NOT MORE THAN 20 FEET APART, AND SHALL BE LINKED TOGETHER BY ORANGE NET FENCE FABRIC, OR OTHER. NO HEAVY EQUIPMENT, VEHICLES, STORAGE OF MATERIALS, ETC., SHALL OCCUR WITHIN THE VEG. PROTECTION ZONE. EXTREME CARE SHALL BE TAKEN WHEN WORKING NEAR THE BASE OF TREES. NO FINISH GRADE FILL SHALL BE PLACED WITHIN A ZONE OF 2/3 THE DIAMETER OF THE TREE CANOPY.

CONSTRUCTION WITHIN CANOPY & TREE BARRICADE SHALL BE BE DONE WITH EXTREME CARE TO MINIMIZE DISTURBANCE TO THE ROOTS BY EXCAVATING, COMPACTING OR ADDING FILL.

UTILITY WORK (TRENCHING) WITHIN THE CANOPY & TREE BARRICADE SHALL BE DONE WITH EXTREME CARE TO MINIMIZE DISTURBANCE TO THE ROOTS BY EXCAVATING, COMPACTING OR ADDING FILL. THE TREE BARRICADE WILL BE MODIFIED TEMPORARILY TO ALLOW ONLY THE MINIMUM WORK ZONE TRESPASS INTO THE CANOPY AREA, CONTINUING TO PROTECT THE REST OF THE CANOPY AREA WITH BARRICADE. NO FILL, EVEN TEMPORARY, SHALL BE PLACED IN ANY PROTECTED ZONE. AT THE CONCLUSION OF SAID ACTIVITY, THE WORKZONE SHALL BE CLEANED UP & TREE BARRICADES REPLACED TO THEIR ORIGINAL CONFIGURATION.

TREE PROTECTION DETAIL

N.T.S.

REFER TO SHEET TD-2 FOR TREE DISPOSITION CHART

Tree Disposition Plan

0 15' 30' 60' 90 120'

NORTH

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Scale: 1" = 30'-0"

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Drawn:	JML
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	1/7/22
	2/21/22

Sheet No.
TD-1

TREE DISPOSITION CHART

TREE NO.	SIZE	BOTANICAL NAME	COMMON NAME	DISPOSITION	DBH INCHES REMOVED
001	16"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
002	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
003	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
004	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
005	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
006	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
007	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
008	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
009	18"	PINUS ELLIOTTII	SLASH PINE	REMOVE	18"
010	16"	PINUS ELLIOTTII	SLASH PINE	REMOVE	16"
011	20"	PINUS ELLIOTTII	SLASH PINE	REMOVE	20"
012	20"	PINUS ELLIOTTII	SLASH PINE	REMOVE	20"
013	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
014	18"	PINUS ELLIOTTII	SLASH PINE	REMOVE	18"
015	18"	PINUS ELLIOTTII	SLASH PINE	REMOVE	18"
016	15"	PINUS ELLIOTTII	SLASH PINE	REMOVE	15"
017	20"	QUERCUS VIRGINIANA	LIVE OAK	REMAIN	
018	12"	PINUS ELLIOTTII	SLASH PINE	REMOVE	12"
019	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
020	18"	QUERCUS VIRGINIANA	LIVE OAK	REMAIN	
021	12"	PINUS ELLIOTTII	SLASH PINE	REMOVE	12"
022	15"	PINUS ELLIOTTII	SLASH PINE	REMOVE	15"
023	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
024	20"	PINUS ELLIOTTII	SLASH PINE	REMOVE	20"
025	12"	PINUS ELLIOTTII	SLASH PINE	REMOVE	12"
026	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
027	18"	PINUS ELLIOTTII	SLASH PINE	REMOVE	18"
028	20"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
029	24"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
030	20"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
031	8"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
032	16"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
033	6"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
034	12"	PINUS ELLIOTTII	SLASH PINE	REMOVE	12"
035	8"	PINUS ELLIOTTII	SLASH PINE	REMOVE	8"
036	12"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
037	18"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
038	12"	PINUS ELLIOTTII	SLASH PINE	REMOVE	12"
039	12"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
040	18"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
041	12"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
042	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
043	10"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
044	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
045	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
046	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
047	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
048	20"	QUERCUS VIRGINIANA	LIVE OAK	REMAIN	
049	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
050	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
051	18"	PINUS ELLIOTTII	SLASH PINE	REMAIN	
052	8' C.T.	SABAL PALMETTO	CABBAGE PALM	REMAIN	
053	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
054	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
055	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
056	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
057	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
058	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
059	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
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061	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
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065	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
066	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
067	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
068	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
069	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
070	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
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072	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
073	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
074	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
075	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
076	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
077	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
078	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
079	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
080	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
081	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
082	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	
083	8' C.T.	SABAL PALMETTO	CABBAGE PALM	RELOCATE	

TOTAL RELOCATED CABBAGE PALMS: 41 PALMS
TOTAL REMOVED SLASH PINES: 16 PINES (246")

TREE REPLACEMENT FORMULA (SLASH PINES):
246" REMOVED X 1.5 = 369" / 2.5" = 148 TREES - *173 TREES = 0 TREES TO MITIGATE
*DENOTES ADDITIONAL TREES ABOVE WHAT IS REQUIRED (142 TREES REQ'D., 315 TREES PROVIDED)

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Landscape Architect of Record

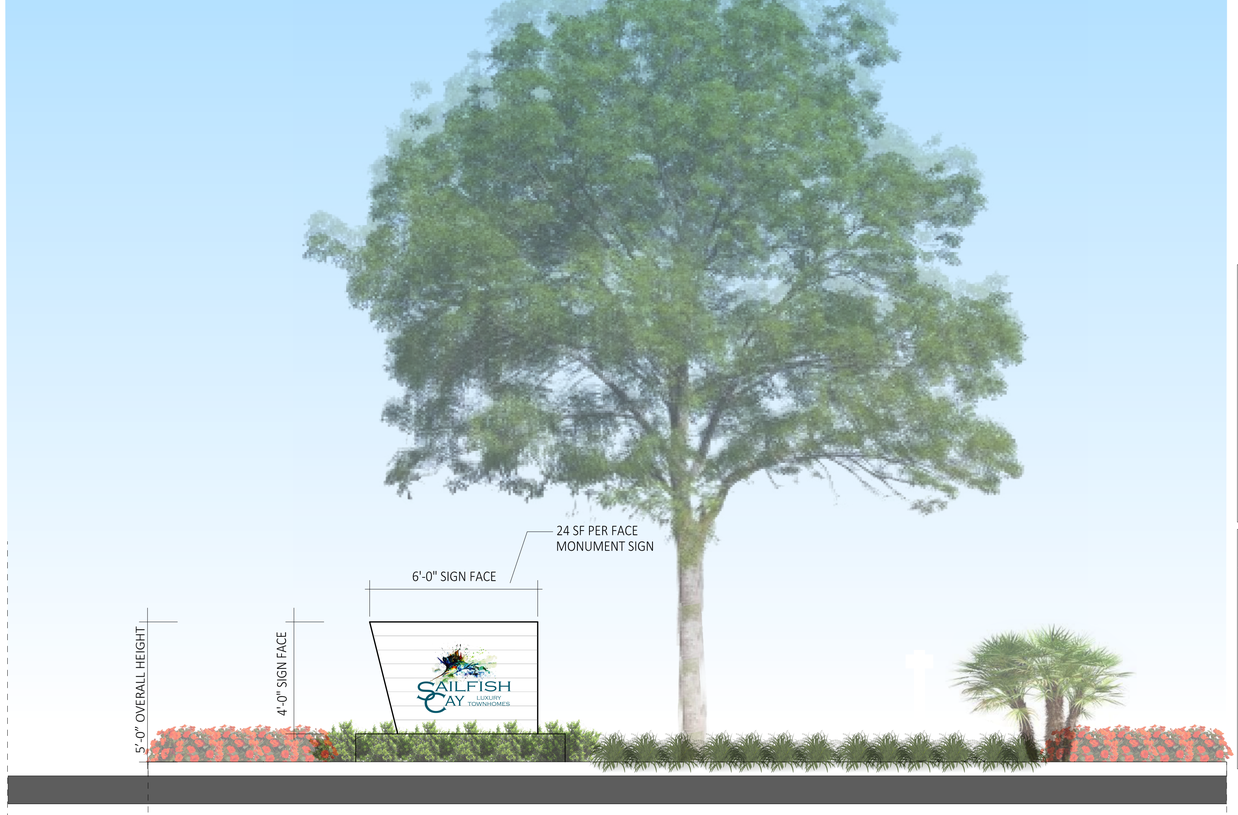
Jason M. Litterick, RLA
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Scale: Not to Scale

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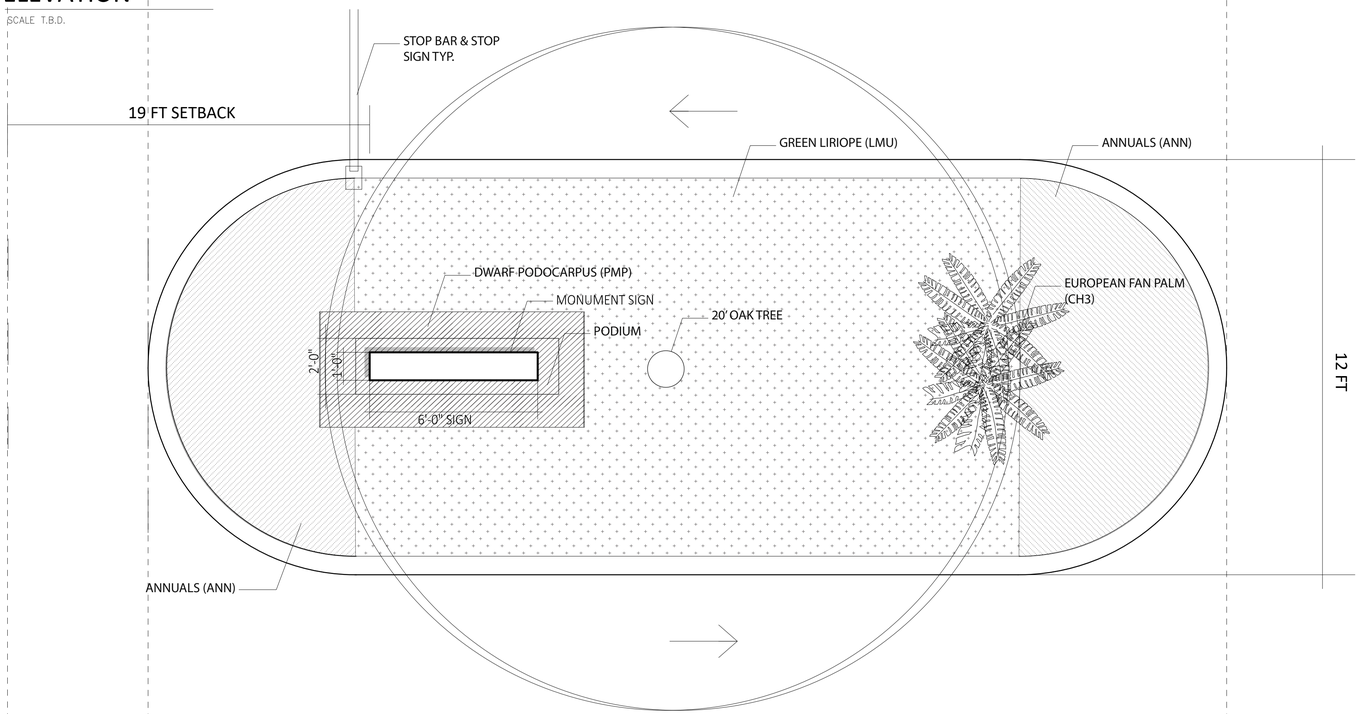
Tree Disposition Chart

Sheet No.
TD-2



ELEVATION

SCALE T.B.D.



SITE PLAN

SCALE T.B.D.

NOTES:
1. SEE LANDSCAPE PLANS FOR DETAILS.
2. EXTERNAL LIGHTING.

ENLARGED SIGN LOGO

SAILFISH CAY LUXURY TOWNHOMES

SIGN SPECS ON THE ELEVATION

MATERIALS: CONCRETE BLOCK;
ALUMINUM PANEL WITH WRAP;
ALUMINUM CHANNEL CUT LETTERS

LETTER COLOR: TEAL
#03586C

R	3	C	93.56%
G	88	M	55.68%
B	108	Y	42.61%
		K	21.3%

GENERAL INFORMATION

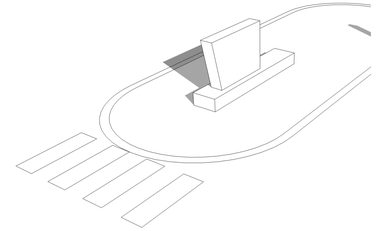
PROJECT LOCATION: 751 SE CENTRAL PKWY, STUART, FL 34994
ZONING: R-3 RESIDENTIAL - MULTI-FAMILY/ DUPLEX
--
SIGN REGULATIONS REQUIRED/ PROVIDED:
AREA OF SIGN NOT TO EXCEED 24 SF PER FACE/ 24 SF PROVIDED
10' FRONT YARD SETBACK/ 15 FT PROVIDED
6' MAX. HEIGHT/ 5 FT PROVIDED

ADDITIONAL INFORMATION:

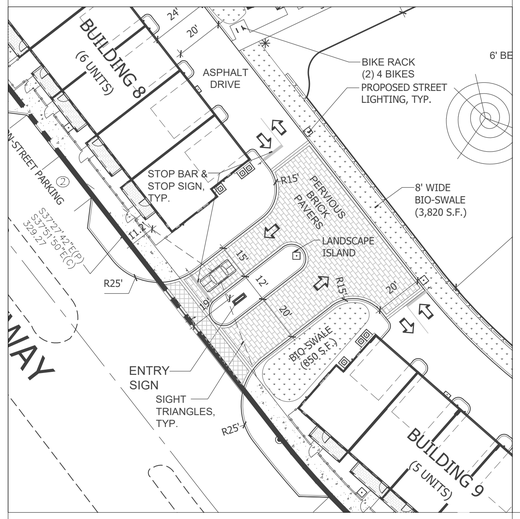
MONUMENT SIGNS. MONUMENT SIGNS SHALL BE COMPOSED OF METAL FRAME, TEXTURED BRICK, CONCRETE BLOCK, OR OTHER MASONRY, AND FINISHED WITH STUCCO OR OTHER TEXTURED MATERIAL, AND HAVING A SOLID BASE. THE TOP EDGE OF THE SIGN SHALL BE NO HIGHER THAN ELSEWHERE PERMITTED IN THIS CODE, AND THE SKIRT AND BASE SHALL BE NO SMALLER THAN 80 PERCENT OF THE SIGN WIDTH NOR GREATER THAN 120 PERCENT OF THE SIGN WIDTH. A MONUMENT SIGN SHALL NOT BE USED AS A FRAME FOR A CABINET SIGN THAT EXCEEDS 25 PERCENT OF THE SIGN AREA.

MEASUREMENT: THE SIGN FACE INCLUDES ANY BACKGROUND MATERIAL, PANEL, TRIM, COLOR, AND DIRECT OR SELF-ILLUMINATION USED THAT DIFFERENTIATES THE SIGN FROM THE BUILDING, STRUCTURE, BACKDROP SURFACE, OR OBJECT UPON WHICH, OR AGAINST WHICH, IT IS PLACED. WHEN THERE IS NO SUCH DIFFERENTIATION, THE SIGN FACE SHALL BE ONE OR MORE RECTANGLES JUST LARGE ENOUGH TO ENCLOSE ALL LETTERING, ILLUSTRATIONS, ORNAMENTATION, SYMBOLS, OR LOGOS. A SIGN STRUCTURE SHALL NOT BE INCLUDED IN THE TOTAL SIGN AREA PROVIDED THAT NO LETTERING, ILLUSTRATIONS, ORNAMENTATION, SYMBOLS, OR LOGOS ARE DISPLAYED ON, OR DESIGNED AS PART OF, THE SIGN STRUCTURE.

3D FRAMEWORK



LOCATION MAP



DESIGNER:
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URBAN PLANNER &
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SAILFISH CAY

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SAILFISH CAY

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REVISIONS

NO.	DATE	DESCRIPTION

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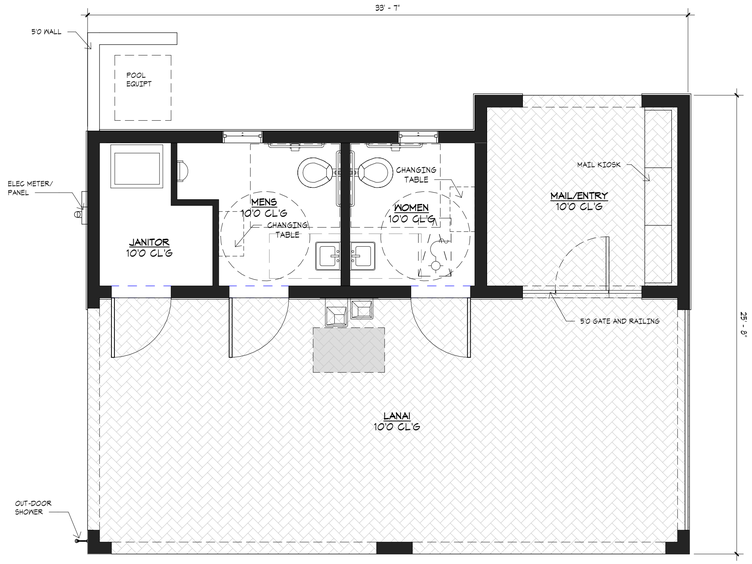
DATE	10/20/2021
DRAWN BY	CLOPEZ
JOB NO.	TBD
SCALE	AS INDICATED

MONUMENT SIGN SHEET

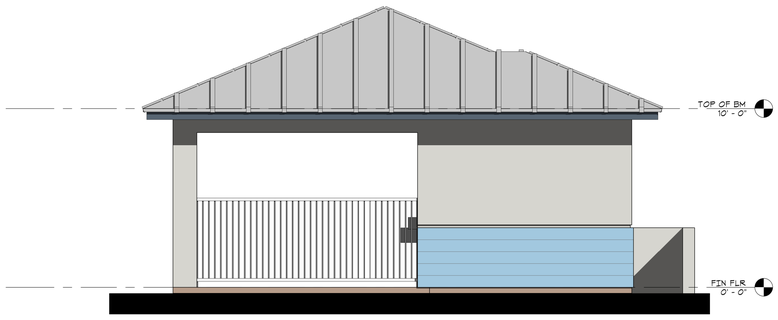
MS-1

NEW DEVELOPMENT

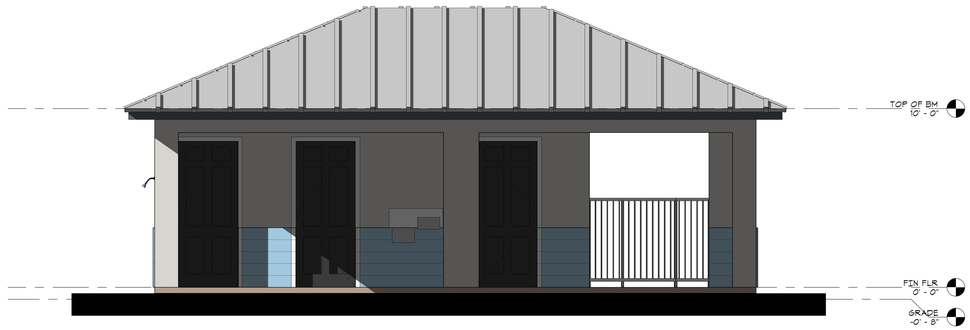
AREA CALCULATION	
	AREA
ENTRY	136 SF
LANAI	483 SF
REST RM/JANITOR	202 SF
	821 SF
Grand total	821 SF



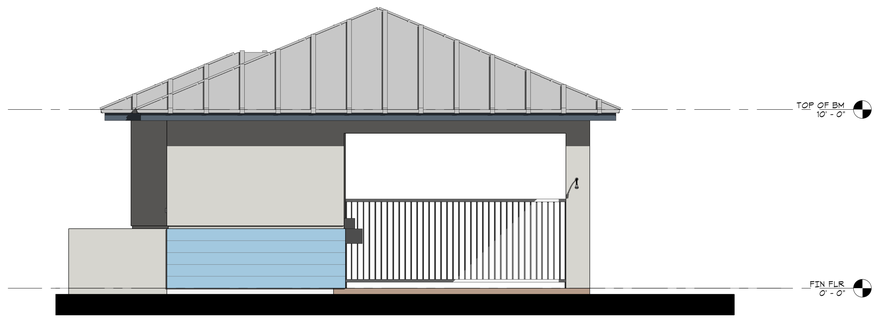
1 FIN FLR
1/4" = 1'-0"



6 LEFT ELEVATION
1/4" = 1'-0"



3 REAR ELEVATION
1/4" = 1'-0"



5 RIGHT ELEVATION
1/4" = 1'-0"



4 FRONT ELEVATION
1/4" = 1'-0"

I:\STEVE GRAVITY\CABANAS.rvt

POOL CABANA

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

SHEET INFORMATION

CLIENT INFORMATION

SPECIALTY ENGINEERING CONSULTANTS, Inc

1599 SW 30th AVE.
SUITE #20
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DADE - BROWARD - PALM BEACH
FL. CA. #009217

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SCALE	
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SHEET #
A-1



PLAN C

BUILDING COLOR		
FRONT DOOR	MOODY BLUE	SW 6221
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVEARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221

PLAN A

BUILDING COLOR		
FRONT DOOR	MOODY BLUE	SW 6221
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVEARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221

PLAN B

BUILDING COLOR		
FRONT DOOR	EXTRA WHITE	SW 7006
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVEARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221

PLAN A

BUILDING COLOR		
FRONT DOOR	MOODY BLUE	SW 6221
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVEARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221

1 FRONT
3/16" = 1'-0"





3 LEFT SIDE ELEVATION
3/16" = 1'-0"

4 RIGHT ELEVATION
3/16" = 1'-0"



2 REAR
3/16" = 1'-0"

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ELEVATIONS

SHEET INFORMATION
4-UNIT BUILDING 1

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

CLIENT INFORMATION

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A-2



PLAN C **PLAN A** **PLAN A** **PLAN C**

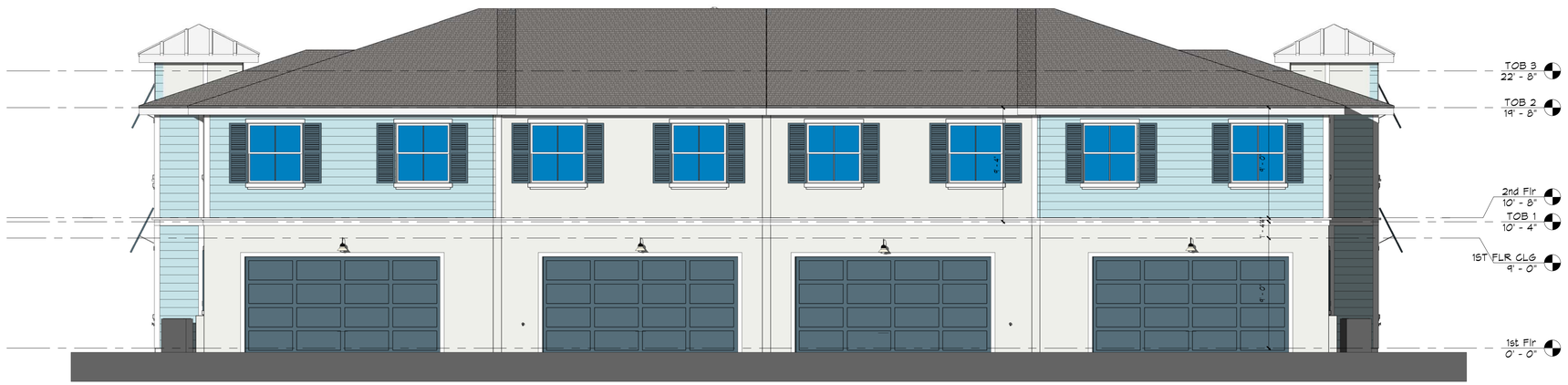
1 FRONT
3/16" = 1'-0"



3 LEFT SIDE ELEVATION
3/16" = 1'-0"



4 RIGHT SIDE ELEVATION
3/16" = 1'-0"



2 REAR
3/16" = 1'-0"

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ELEVATIONS

SHEET INFORMATION
4-UNIT BUILDING TYPE II

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

CLIENT INFORMATION

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SHEET #
A-2



PLAN C **PLAN B** **PLAN A** **PLAN B** **PLAN C**

1 FRONT
3/16" = 1'-0"



3 LEFT SIDE ELEVATION
3/16" = 1'-0"



4 RIGHT SIDE ELEVATION
3/16" = 1'-0"



2 REAR
3/16" = 1'-0"

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ELEVATIONS

SHEET INFORMATION
5-UNIT BUILDING

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

CLIENT INFORMATION

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SHEET #
A-2



PLAN C **PLAN B** **PLAN A** **PLAN B** **PLAN A** **PLAN C**

1 FRONT
3/16" = 1'-0"



3 LEFT SIDE ELEVATION
3/16" = 1'-0"



4 RIGHT SIDE ELEVATION
3/16" = 1'-0"



2 REAR
3/16" = 1'-0"

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ELEVATIONS

SHEET INFORMATION
6-UNIT BUILDING

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

CLIENT INFORMATION

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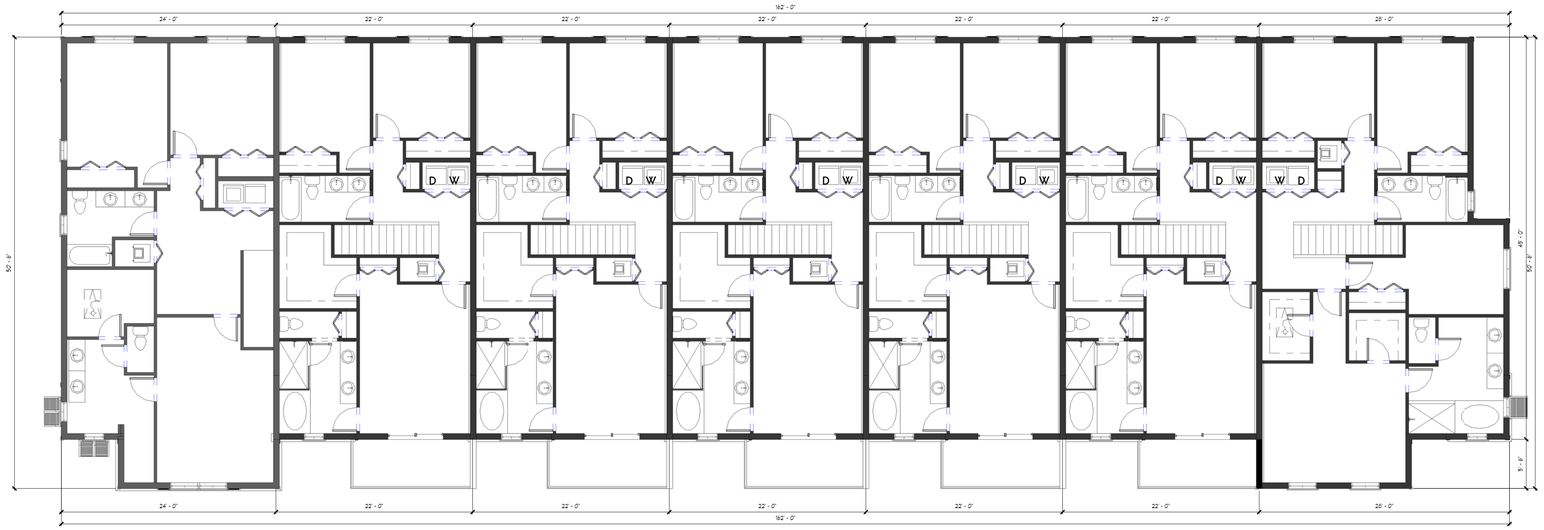
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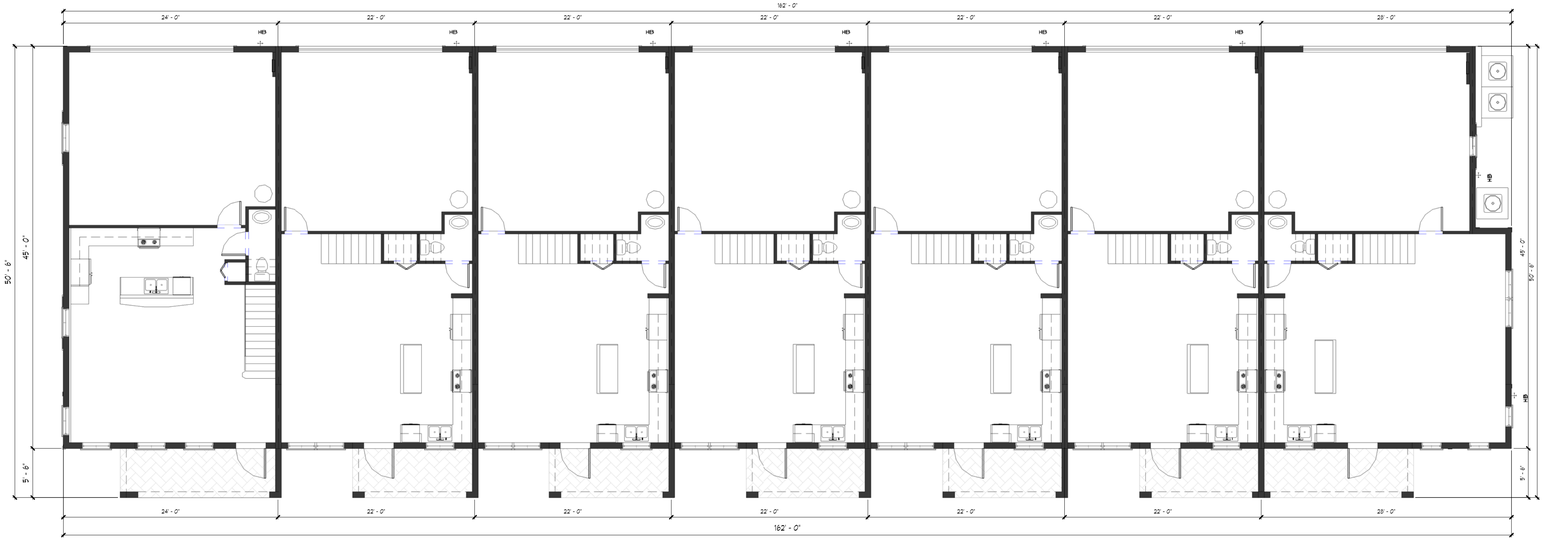
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SHEET #
A-2



2 2nd Flr
1/8" = 1'-0"



PLAN B PLAN A PLAN A PLAN A PLAN A PLAN A PLAN C

1 1ST FLOOR PLAN
1/8" = 1'-0"

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FLOOR PLANS

SHEET INFORMATION
7-UNIT BUILDING

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

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SHEET #
A-1



1 FRONT
1/8" = 1'-0"

PLAN B | **PLAN A** | **PLAN A** | **PLAN A** | **PLAN A** | **PLAN A** | **PLAN C**

BUILDING COLOR		
FRONT DOOR	EXTRA WHITE	SW 7006
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVIARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221

BUILDING COLOR		
FRONT DOOR	MOODY BLUE	SW 6221
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVIARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221

BUILDING COLOR		
FRONT DOOR	MOODY BLUE	SW 6221
BODY STUCCO	EXTRA WHITE	SW 7006
STUCCO SIDING	AVIARY BLUE	SW 6778
ROOF	ASPHALT SHINGLE	GREY
FASCIA/TRIM	EXTRA WHITE	SW 7006
SHUTTER	MOODY BLUE	SW 6221
GARAGE DOOR	MOODY BLUE	SW 6221



3 LEFT SIDE ELEVATION
1/8" = 1'-0"



4 RIGHT SIDE ELEVATION
1/8" = 1'-0"



2 REAR
1/8" = 1'-0"

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ELEVATIONS

SHEET INFORMATION
7-UNIT BUILDING

PROJECT INFORMATION
SAILFISH CAY
STUART, FLORIDA

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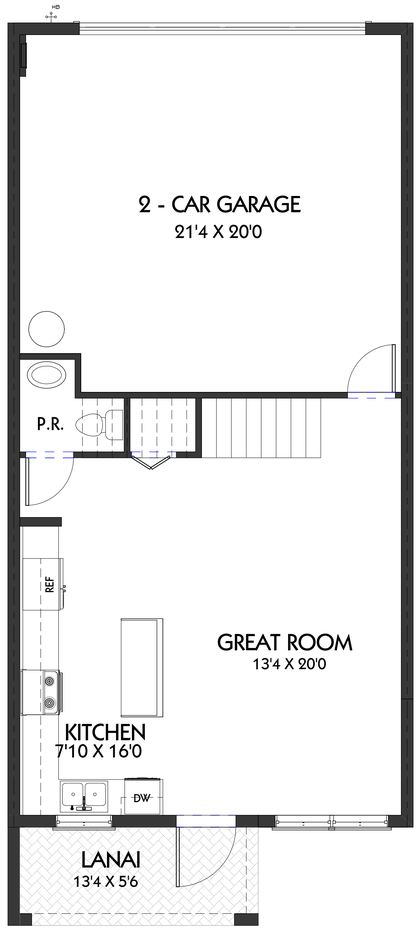
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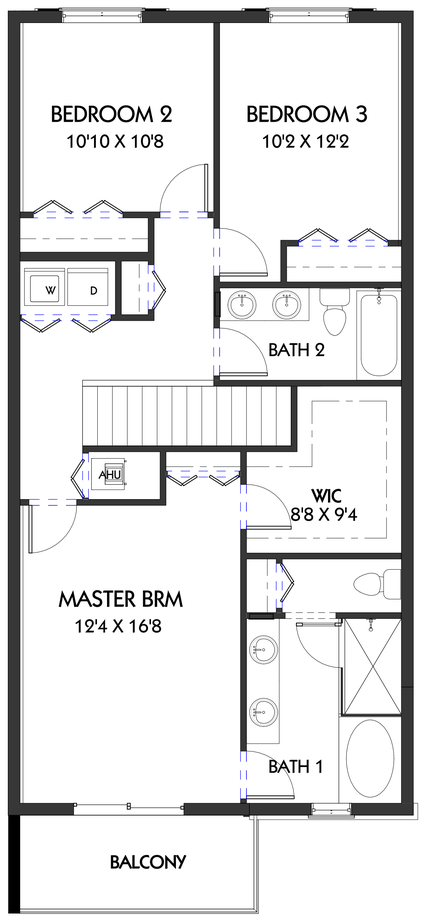
SHEET #
A-2



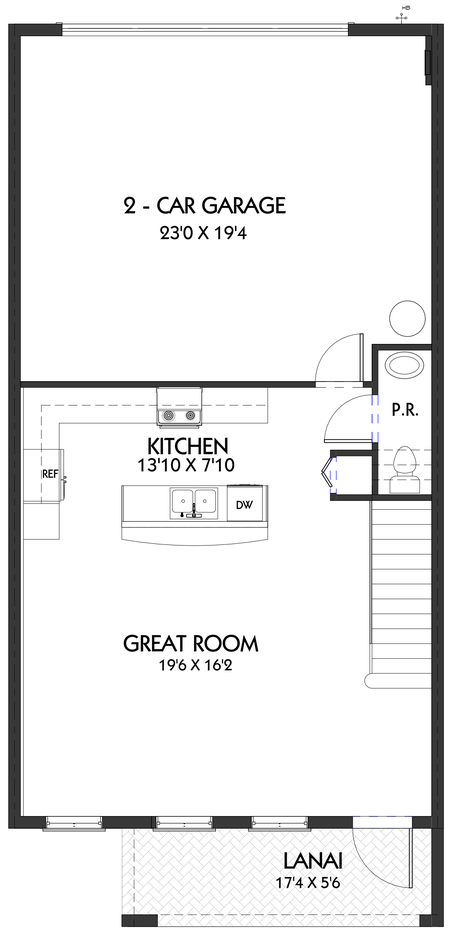
1 1ST FLOOR
1/4" = 1'-0"

PLAN A

AREA CALCULATION	
Comments	Area
1ST FLOOR A/C	544 SF
2ND FLOOR A/C	953 SF
	1497 SF
BALCONY	73 SF
GARAGE	447 SF
LANAI	73 SF
	594 SF
Grand total	2091 SF



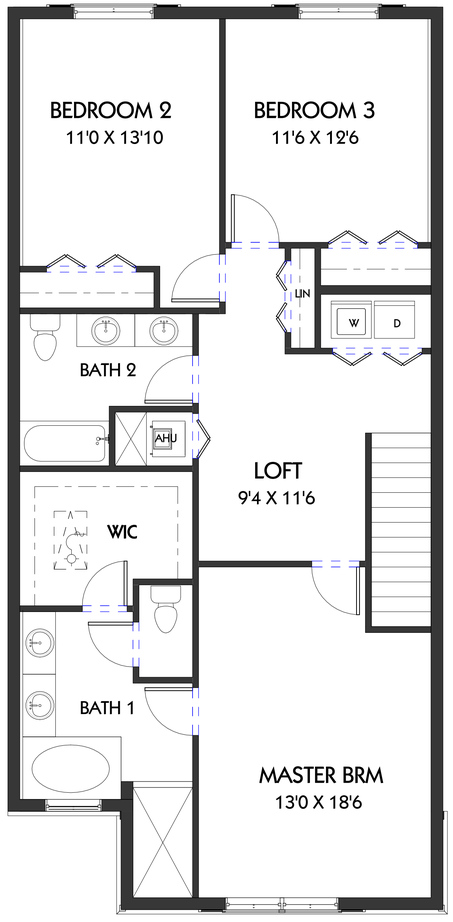
2 2ND FLOOR
1/4" = 1'-0"



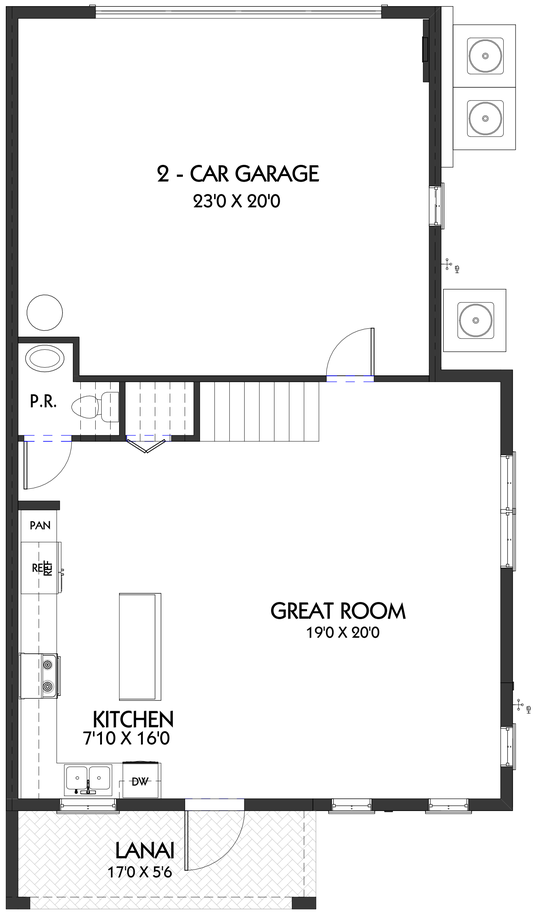
1 1ST FLOOR
1/4" = 1'-0"

PLAN B

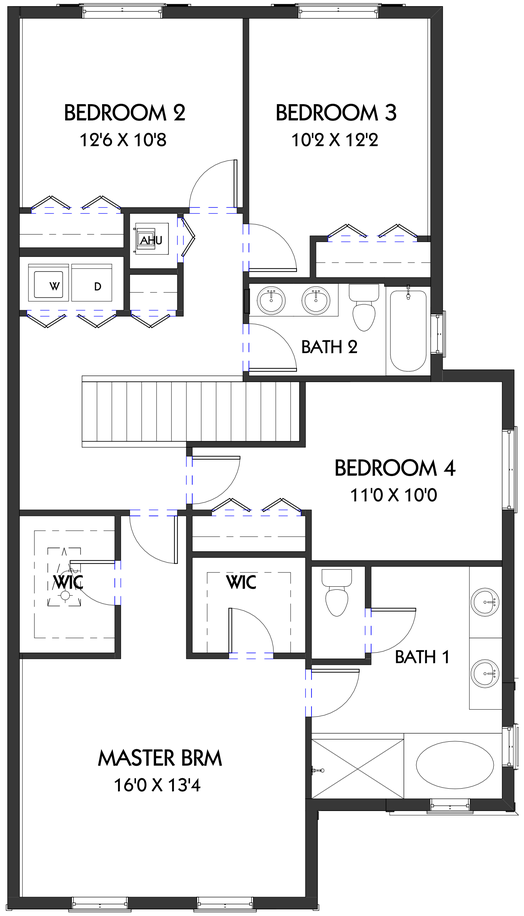
AREA CALCULATION	
Comments	Area
1ST FLOOR A/C	600 SF
2ND FLOOR A/C	1127 SF
	1727 SF
GARAGE	466 SF
LANAI	97 SF
	563 SF
	2291 SF



2 2ND FLOOR
1/4" = 1'-0"



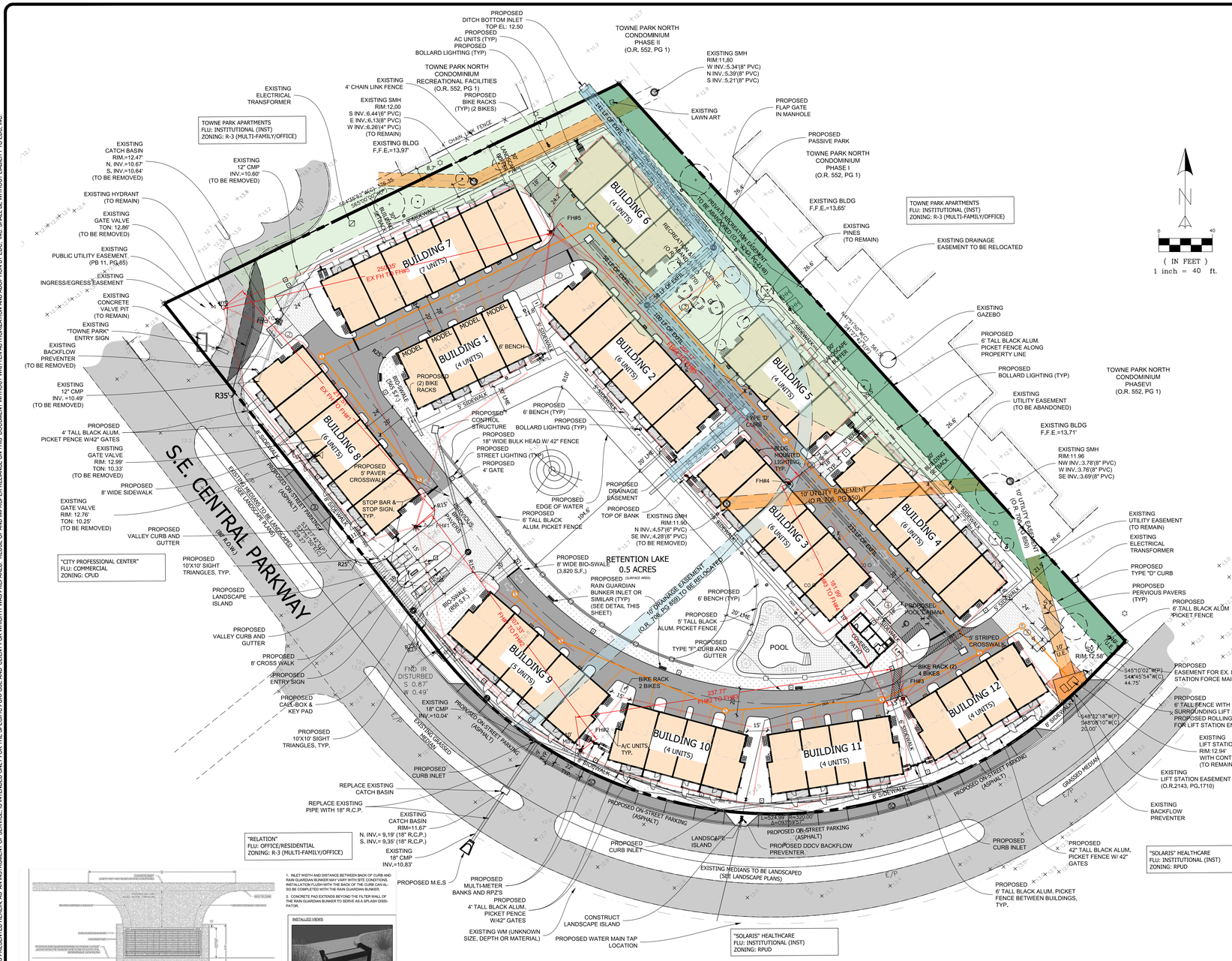
1 1ST FLOOR
1/4" = 1'-0"



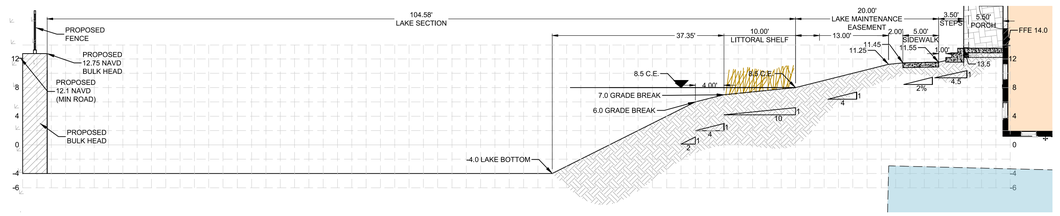
2 2ND FLOOR
1/4" = 1'-0"

PLAN C

AREA CALCULATION	
Comments	Area
1ST FLOOR A/C	691 SF
2ND FLOOR A/C	1233 SF
	1923 SF
GARAGE	488 SF
LANAI	95 SF
	583 SF
Grand total	2506 SF

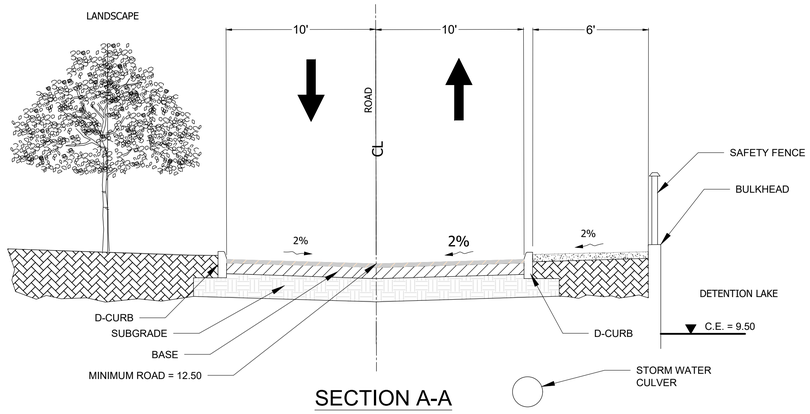

S.E. CENTRAL PARKWAY
(80' R.O.W.)
BUILDING 1 (4 UNITS)
BUILDING 2 (6 UNITS)
BUILDING 3 (6 UNITS)
BUILDING 4 (6 UNITS)
BUILDING 5 (4 UNITS)
BUILDING 6 (4 UNITS)
BUILDING 7 (7 UNITS)
BUILDING 8 (6 UNITS)
BUILDING 9 (5 UNITS)
BUILDING 10 (4 UNITS)
BUILDING 11 (4 UNITS)
BUILDING 12 (4 UNITS)
RETENTION LAKE
0.5 ACRES
POOL
PROPOSED POOL CABANA
PROPOSED DITCH BOTTOM INLET TOP EL. 12.50
PROPOSED AC UNITS (TYP)
PROPOSED BOLLARD LIGHTING (TYP)
TOWNE PARK NORTH CONDOMINIUM RECREATIONAL FACILITIES (O.R. 552, PG 1)
PROPOSED BIKE RACKS (TYP) (2 BIKES)
EXISTING 4' CHAIN LINK FENCE
EXISTING ELECTRICAL TRANSFORMER
EXISTING SMH RIM:12.00 S INV.:6.44'(6" PVC) E INV.:6.13'(8" PVC) W INV.:6.26'(4" PVC) (TO REMAIN)
EXISTING BLDG F.F.E.=13.97'
TOWNE PARK APARTMENTS FLU: INSTITUTIONAL (INST) ZONING: R-3 (MULTI-FAMILY/OFFICE)
EXISTING CATCH BASIN RIM.=12.47' N. INV.=10.67' S. INV.=10.64' (TO BE REMOVED)
EXISTING 12" CMP INV.=10.60' (TO BE REMOVED)
EXISTING HYDRANT (TO REMAIN)
EXISTING GATE VALVE TON: 12.86' (TO BE REMOVED)
EXISTING PUBLIC UTILITY EASEMENT. (PB 11, PG.85)
EXISTING INGRESS/EGRESS EASEMENT
EXISTING CONCRETE VALVE PIT (TO REMAIN)
EXISTING "TOWNE PARK" ENTRY SIGN
EXISTING BACKFLOW PREVENTER (TO BE REMOVED)
EXISTING 12" CMP INV. =10.49' (TO BE REMOVED)
PROPOSED 4' TALL BLACK ALUM. PICKET PENCE W/42" GATES
EXISTING GATE VALVE RIM: 12.99' TON: 10.33' (TO BE REMOVED)
PROPOSED 8' WIDE SIDEWALK
EXISTING GATE VALVE RIM: 12.76' TON: 10.26' (TO BE REMOVED)
PROPOSED VALLEY CURB AND GUTTER
"CITY PROFESSIONAL CENTER" FLU: COMMERCIAL ZONING: CPUD
PROPOSED 10'X10' SIGHT TRIANGLES, TYP.
PROPOSED LANDSCAPE ISLAND
PROPOSED VALLEY CURB AND GUTTER
PROPOSED 8' CROSS WALK
PROPOSED ENTRY SIGN
PROPOSED CAT-BOX & KEY PAD
PROPOSED 10'X10' SIGHT TRIANGLES, TYP.
PROPOSED CURB INLET
REPLACE EXISTING CATCH BASIN
REPLACE EXISTING PIPE WITH 18" R.C.P.
EXISTING CATCH BASIN RIM=11.67' N. INV.= 9.19' (18" R.C.P.) S. INV.= 9.35' (18" R.C.P.)
EXISTING 18" CMP INV.=10.83'
PROPOSED M.E.S
"RELATION" FLU: OFFICE/RESIDENTIAL ZONING: R-3 (MULTI-FAMILY/OFFICE)
PROPOSED MULTI-METER BANKS AND RPZ'S
PROPOSED 4' TALL BLACK ALUM. PICKET PENCE W/42" GATES
EXISTING WM (UNKNOWN SIZE, DEPTH OR MATERIAL)
CONSTRUCT LANDSCAPE ISLAND
PROPOSED WATER MAIN TAP LOCATION
EXISTING 18" CMP INV.=10.04'
PROPOSED ON-STREET PARKING (ASPHALT)
EXISTING GRASSED MEDIAN
PROPOSED 5' PAVER CROSSWALK
STOP BAR & STOP SIGN, TYP.
PROPOSED CONTROL STRUCTURE
PROPOSED 6' BENCH (TYP)
PROPOSED BOLLARD LIGHTING (TYP)
PROPOSED 18" WIDE BULK HEAD W/ 42" FENCE
PROPOSED STREET LIGHTING (TYP)
PROPOSED 4' GATE
PROPOSED DRAINAGE EASEMENT
PROPOSED EDGE OF WATER
PROPOSED TOP OF BANK
EXISTING SMH RIM:11.90 N INV.:4.57'(6" PVC) SE INV.:4.28'(8" PVC) (TO BE REMOVED)
PROPOSED 8' WIDE BIO-SWALE (3,820 S.F.)
BIO-SWALE (609 S.F.)
PROPOSED (TURNING AREA) RAIN GUARDIAN BUNKER INLET OR SIMILAR (TYP) (SEE DETAIL THIS SHEET)
PROPOSED 6' BENCH (TYP)
PROPOSED 5' TALL BLACK ALUM. PICKET FENCE
PROPOSED TYPE "E" CURB AND GUTTER
10' DRAINAGE EASEMENT (O.R. 700, PG 950) TO BE RELOCATED
10' UTILITY EASEMENT (O.R. 700, PG 950)
EXISTING SMH RIM:11.80 W INV.:5.34'(8" PVC) N INV.:5.39'(8" PVC) S INV.:5.21'(8" PVC)
EXISTING LAWN ART
PROPOSED FLAP GATE IN MANHOLE
PROPOSED PASSIVE PARK
TOWNE PARK NORTH CONDOMINIUM PHASE I (O.R. 552, PG 1)
EXISTING BLDG F.F.E.=13.65'
EXISTING PINES (TO REMAIN)
EXISTING DRAINAGE EASEMENT TO BE RELOCATED
TOWNE PARK APARTMENTS FLU: INSTITUTIONAL (INST) ZONING: R-3 (MULTI-FAMILY/OFFICE)
EXISTING GAZEBO
PROPOSED 6' TALL BLACK ALUM. PICKET FENCE ALONG PROPERTY LINE
PROPOSED BOLLARD LIGHTING (TYP)
EXISTING UTILITY EASEMENT (TO BE ABANDONED)
TOWNE PARK NORTH CONDOMINIUM PHASEVI (O.R. 552, PG 1)
EXISTING BLDG F.F.E.=13.71'
EXISTING SMH RIM:11.96 NW INV.:3.78'(8" PVC) W INV.:3.76'(8" PVC) SE INV.:3.69'(8" PVC)
10' UTILITY EASEMENT (OR 700, PG 950)
EXISTING UTILITY EASEMENT (TO REMAIN)
EXISTING ELECTRICAL TRANSFORMER
PROPOSED TYPE "D" CURB
PROPOSED PERVIOUS PAVERS (TYP)
PROPOSED 6' TALL BLACK ALUM PICKET FENCE
PROPOSED EASEMENT FOR EX. LIFT STATION FORCE MAIN
PROPOSED 6' TALL FENCE WITH FABRIC SURROUNDING LIFT STATION
PROPOSED ROLLING GATE FOR LIFT STATION ENTRANCE
EXISTING LIFT STATION RIM:12.94' WITH CONTROL BOX (TO REMAIN)
EXISTING LIFT STATION EASEMENT (O.R.2143, PG.1710)
EXISTING BACKFLOW PREVENTER
PROPOSED 42" TALL BLACK ALUM. PICKET FENCE W/ 42" GATES
"SOLARIS" HEALTHCARE FLU: INSTITUTIONAL (INST) ZONING: RPUD
PROPOSED 6' TALL BLACK ALUM. PICKET FENCE BETWEEN BUILDINGS, TYP.
PROPOSED DRAINAGE INLET
PROPOSED DDCV BACKFLOW PREVENTER
EXISTING MEDIANS TO BE LANDSCAPED (SEE LANDSCAPE PLANS)
PROPOSED 6" BENCH (TYP)
PROPOSED 6' TALL BLACK ALUM. PICKET FENCE
PROPOSED 8' WIDE BIO-SWALE
PROPOSED 5' TALL BLACK ALUM. PICKET FENCE
PROPOSED TYPE "E" CURB AND GUTTER
PROPOSED 5' STRIPED CROSSWALK
PROPOSED 6' SIDEWALK
PROPOSED 8' SIDEWALK
PROPOSED 4' SIDEWALK
PROPOSED 5' SIDEWALK
PROPOSED 6' BIKE RACK
PROPOSED (2) BIKE RACKS
PROPOSED 8' TALL BLACK ALUM. PICKET FENCE
PROPOSED 18" WIDE BULK HEAD W/ 42" FENCE
PROPOSED 4' GATE
PROPOSED 6' BENCH (TYP)
PROPOSED 5' PAVER CROSSWALK
PROPOSED 8' WIDE SIDEWALK
PROPOSED 6' SIDEWALK
PROPOSED 5' SIDEWALK
PROPOSED 4' SIDEWALK
PROPOSED 6' BIKE RACK
PROPOSED (2) BIKE RACKS
PROPOSED 8' TALL BLACK ALUM. PICKET FENCE
PROPOSED 18" WIDE BULK HEAD W/ 42" FENCE
PROPOSED STREET LIGHTING (TYP)
PROPOSED 4' GATE
PROPOSED DRAINAGE EASEMENT
PROPOSED EDGE OF WATER
PROPOSED TOP OF BANK
EXISTING SMH RIM:11.90 N INV.:4.57'(6" PVC) SE INV.:4.28'(8" PVC) (TO BE REMOVED)
PROPOSED 8' WIDE BIO-SWALE (3,820 S.F.)
BIO-SWALE (609 S.F.)
PROPOSED (TURNING AREA) RAIN GUARDIAN BUNKER INLET OR SIMILAR (TYP) (SEE DETAIL THIS SHEET)
PROPOSED 6' BENCH (TYP)
PROPOSED 5' TALL BLACK ALUM. PICKET FENCE
PROPOSED TYPE "E" CURB AND GUTTER
10' DRAINAGE EASEMENT (O.R. 700, PG 950) TO BE RELOCATED
10' UTILITY EASEMENT (O.R. 700, PG 950)
PROPOSED 5' STRIPED CROSSWALK
PROPOSED 6' SIDEWALK
PROPOSED 8' SIDEWALK
PROPOSED 4' SIDEWALK
PROPOSED 5

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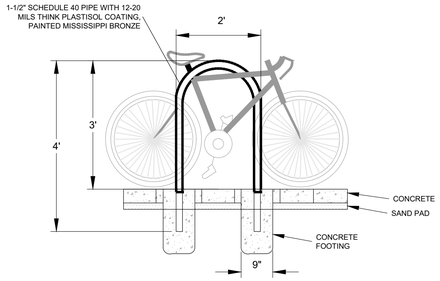


TYPICAL LAKE CROSS SECTION W/ LITTORAL PLANTINGS

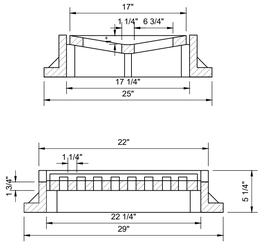
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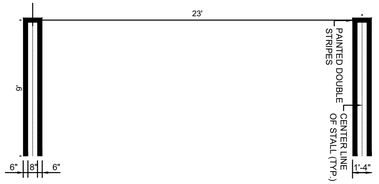
SECTION A-A



BIKE RACK DETAIL



VALLEY CURB INLET



TYPICAL PARALLEL PARKING STALL

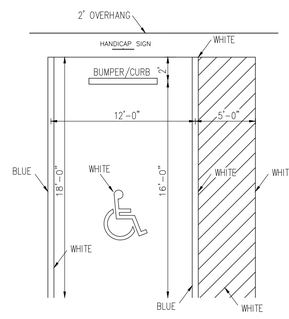
1" = 5'



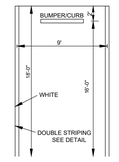
FTP 25

NOTES:

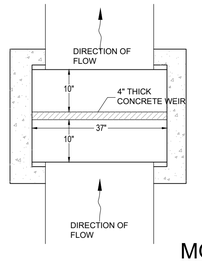
1. TOP PORTION OF FTP 25 & 26 SHALL HAVE A REFLECTIVE BLUE BACKGROUND WITH WHITE REFLECTIVE SYMBOL AND BORDER.
2. BOTTOM PORTION SHALL HAVE A REFLECTIVE WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.
3. FTP 25 & 26 MAY BE FABRICATED ON ONE PANEL OR TWO.
4. FTP 25 IS FOR USE IN AREAS WHERE SPACE IS LIMITED.

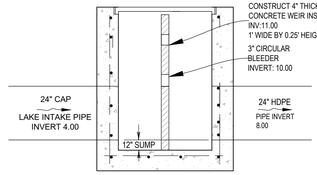


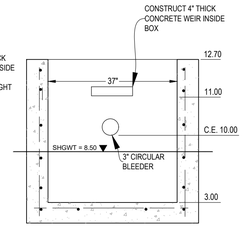
HANDICAP SPACE DETAIL



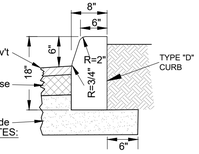
18' PARKING STALL DETAIL





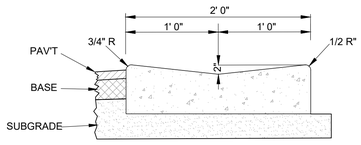


MODIFIED TYPE 'C' CONTROL STRUCTURE



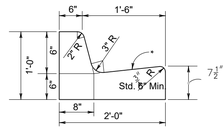
1. Use 3,000 P.S.I. concrete at 28 days for construction.
2. Subgrade to extend an additional 6" beyond Type "D" Curb.
3. Type "D" Curb to be constructed in accordance with FDOT Index #522-001.

TYPE "D" CURB



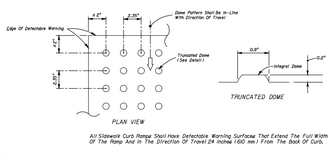
NOTES:
3,000 P.S.I. CONCRETE AT 28 DAYS

2' VALLEY GUTTER



*NOTE: WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.

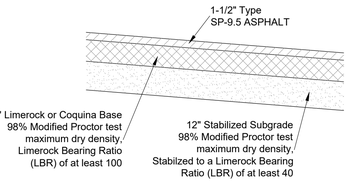
TYPE F



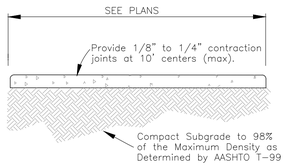
NOTES:
REFER TO FDOT INDEX 304 FOR FURTHER DETAILS

DETECTABLE WARNING

NOT TO SCALE

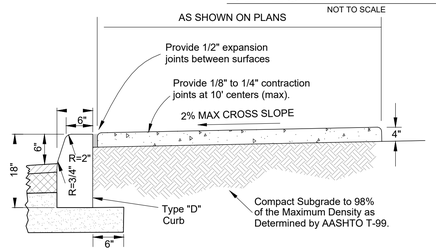


TYPICAL PAVEMENT SECTION



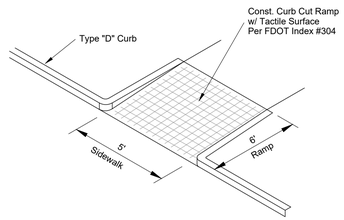
NOTES:
1. Use 3,000 P.S.I. Concrete At 28 Days for sidewalk construction.
2. Sidewalk thickness to be increased to 6" thick at driveway locations.
3. All repairs required during construction shall be removed and replaced 10' minimum to next full joint.

4" THICK SIDEWALK DETAIL



NOTES:
1. Use 4,000 P.S.I. concrete at 28 days for construction.
2. Subgrade to extend an additional 6" beyond Type "D" Curb.

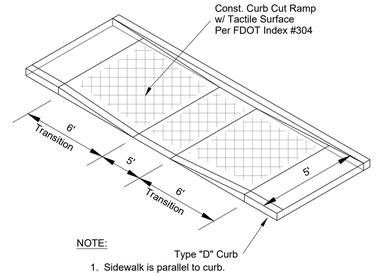
TYPE "D" CURB & SIDEWALK COMBINATION



NOTE:
1. Sidewalk is perpendicular to curb.

CURB CUT RAMP

NOT TO SCALE



NOTE:
1. Sidewalk is parallel to curb.

HANDICAP CURB CUT RAMP

NOT TO SCALE

ENGINEERS SURVEYORS ENVIRONMENTAL
PORT SAINT LUCIE OFFICE
10250 SW VILLAGE PARKWAY - SUITE 201
PORT SAINT LUCIE, FL 34987
772-462-2455
www.edc-inc.com
F.B.P.E. CERTIFICATE OF AUTHORIZATION 9935
L.B. CERTIFICATE OF AUTHORIZATION 8098

JJL DESIGNED BY
JJL DRAWN BY
21-353 sailfish cay (fl).dwg FILENAME
PEP (2) LAYOUT
AS SHOWN SCALE
30MAR/CHG22 DATE

REVISION COMMENTS
DATE

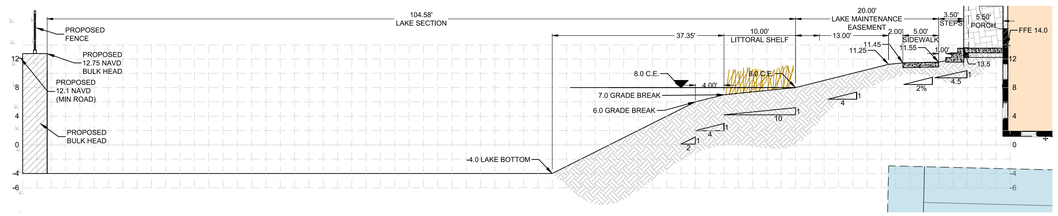
SAILFISH CAY
751 SE CENTRAL PARKWAY MF
PRELIMINARY ENGINEERING PLAN
STUART FLORIDA

R.J. KENNEDY, P.E. (DATE)
#56218
10250 SW VILLAGE PARKWAY, SUITE 201
PORT SAINT LUCIE, FL 34987
772-462-2455

21-353

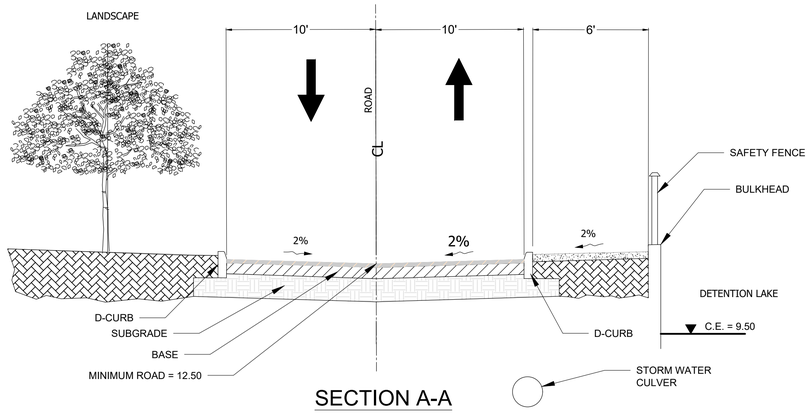
2 OF 2

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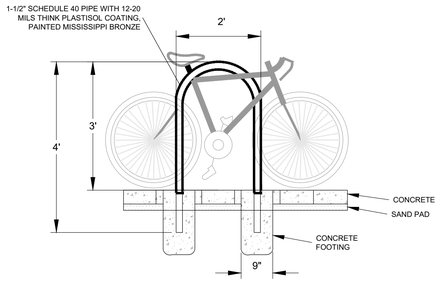


TYPICAL LAKE CROSS SECTION W/ LITTORAL PLANTINGS

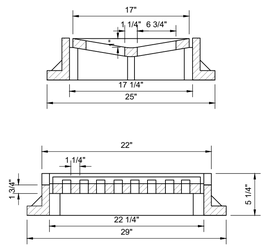
SCALE: 1:10



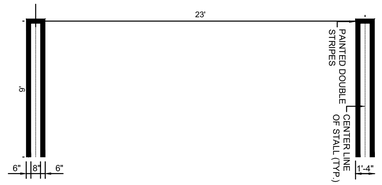
SECTION A-A



BIKE RACK DETAIL



VALLEY CURB INLET



TYPICAL PARALLEL PARKING STALL

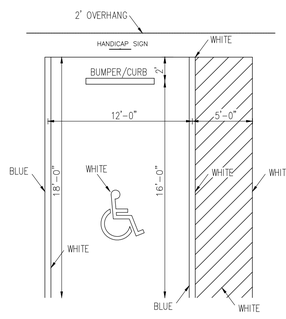
1" = 5'



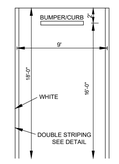
MODIFIED TYPE 'C' CONTROL STRUCTURE

NOTES:

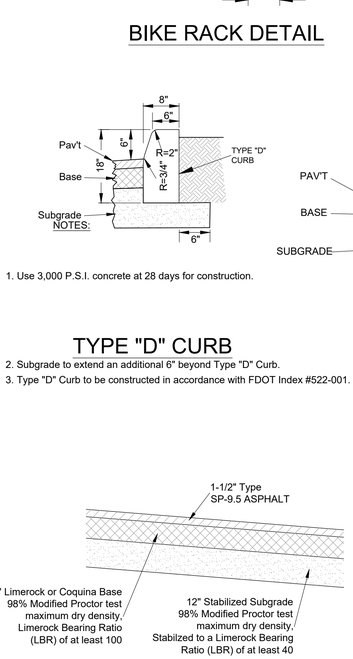
1. TOP PORTION OF FTP 25 & 26 SHALL HAVE A REFLECTIVE BLUE BACKGROUND WITH WHITE REFLECTIVE SYMBOL AND BORDER.
2. BOTTOM PORTION SHALL HAVE A REFLECTIVE WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.
3. FTP 25 & 26 MAY BE FABRICATED ON ONE PANEL OR TWO.
4. FTP 25 IS FOR USE IN AREAS WHERE SPACE IS LIMITED.



HANDICAP SPACE DETAIL

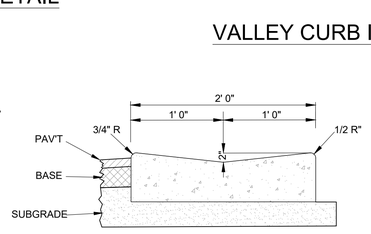


18' PARKING STALL DETAIL



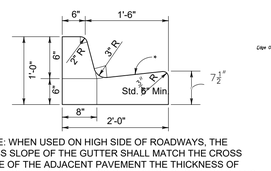
1. Use 3,000 P.S.I. concrete at 28 days for construction.
2. Subgrade to extend an additional 6" beyond Type "D" Curb.
3. Type "D" Curb to be constructed in accordance with FDOT Index #522-001.

TYPE "D" CURB



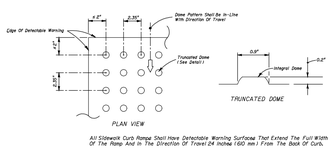
NOTES:
3,000 P.S.I. CONCRETE AT 28 DAYS

2' VALLEY GUTTER



*NOTE: WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.

TYPE F

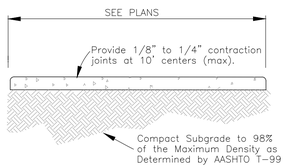


NOTES:
REFER TO FDOT INDEX 304 FOR FURTHER DETAILS

DETECTABLE WARNING

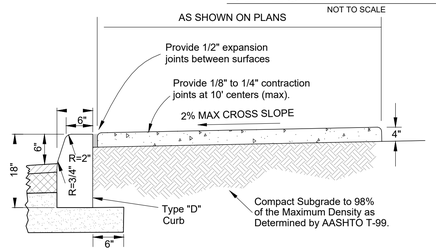
NOT TO SCALE

TYPICAL PAVEMENT SECTION



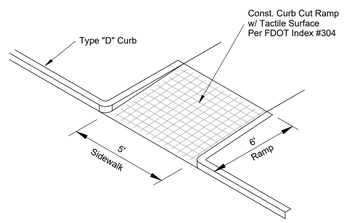
NOTES:
1. Use 3,000 P.S.I. Concrete At 28 Days for sidewalk construction.
2. Sidewalk thickness to be increased to 6" thick at driveway locations.
3. All repairs required during construction shall be removed and replaced 10' minimum to next full joint.

4" THICK SIDEWALK DETAIL



NOTES:
1. Use 4,000 P.S.I. concrete at 28 days for construction.
2. Subgrade to extend an additional 6" beyond Type "D" Curb.

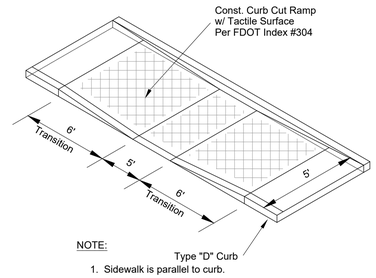
TYPE "D" CURB & SIDEWALK COMBINATION



NOTE:
1. Sidewalk is perpendicular to curb.

CURB CUT RAMP

NOT TO SCALE



NOTE:
1. Sidewalk is parallel to curb.

HANDICAP CURB CUT RAMP

NOT TO SCALE

ENGINEERS SURVEYORS ENVIRONMENTAL
PORT SAINT LUCIE OFFICE
10250 SW VILLAGE PARKWAY - SUITE 201
PORT SAINT LUCIE, FL 34987
772-462-2455
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F.B.P.E. CERTIFICATE OF AUTHORIZATION 9935
L.B. CERTIFICATE OF AUTHORIZATION 8098

JJL DESIGNED BY
JJL DRAWN BY
21-353 saltfish cay (7.dwg FILENAME
PEP (2) LAYOUT
AS SHOWN SCALE
21 FEBRUARY 2022 DATE

REVISION COMMENTS
DATE

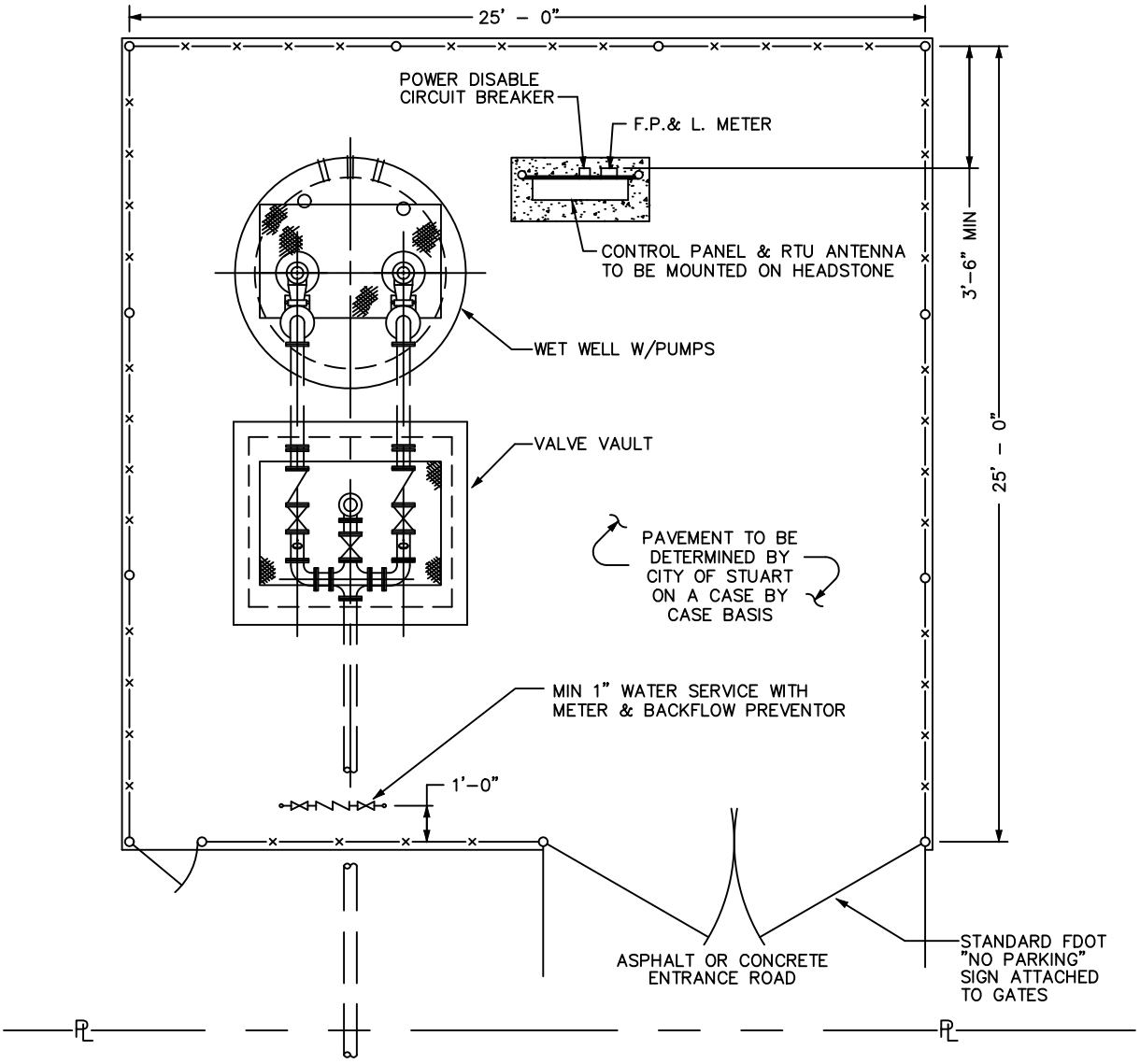
SAILFISH CAY
751 SE CENTRAL PARKWAY MF
PRELIMINARY ENGINEERING PLAN
STUART FLORIDA

R.J. KENNEDY, P.E. (DATE)
#56218
10250 SW VILLAGE PARKWAY, SUITE 201
PORT SAINT LUCIE, FL 34987
772-462-2455

21-353

2 OF 2

THIS DRAWING DEPICTS A GENERAL SITE PLAN ONLY. THE ENGINEER OF RECORD SHALL ORIENT THE COMPONENTS OF THE SYSTEM TO MEET SPECIFIC SITE PLAN CONDITIONS



NOTES:

1. MINIMUM 12' WIDE ASPHALT OR CONCRETE ENTRANCE ROAD.
2. ENTRANCE ROAD TO BE EITHER CONCRETE OR ASPHALT AND CONFORM TO FDOT SPECIFICATIONS.
3. PROVIDE TWO (2), 6' WIDE SWING OPEN GATES AT THE ENTRANCE ROAD AND A 30" WALK-IN GATE.
4. PROVIDE A 1" POLYETHYLENE WATER SERVICE LINE WITH METER BOX THAN A REDUCED PRESSURE BACKFLOW PREVENTION DEVICE LOCATED INSIDE FENCE.
5. THE CHAIN LINK FABRIC SHALL BE HOT-DIPPED GALVANIZED AFTER WEAVING. THE SIZE OF MESH SHALL BE 2" AND THE SIZE OF COATED WIRE SHALL BE 9 GAUGE. FABRIC HEIGHT SHALL BE 72". PRIVACY SLATS TO BE INSTALLED.
6. ALL POSTS, RAILS AND APPURTENANCES SHALL BE HOT-DIPPED ZINC-COATED STEEL. PIPE POSTS SHALL HAVE TOPS WHICH EXCLUDE MOISTURE. END, CORNER, PULL AND GATE POSTS SHALL BE BRACED WITH THE SAME MATERIAL AS TOP RAIL AND TRUSSED TO LINE POSTS WITH 3/8" RODS AND TIGHTENERS.
7. TOP AND BOTTOM RAIL SHALL BE 1 5/8" OD STANDARD WEIGHT PIPE, 2.27 LBS/FT, INTERMEDIATE POSTS SHALL BE 2" OD STANDARD WEIGHT PIPE, 2.27 LBS/FT AND POSTS FOR SWING GATES SHALL BE 4" OD STANDARD WEIGHT PIPE, 9.11 LBS/FT.
8. POSTS WHICH COME IN CONTACT WITH CONCRETE SHALL BE COATED WITH WATER BASE EPOXY.
9. LIFT STATION MUST BE SCREENED WITH EITHER LANDSCAPING (AT PLANT HEIGHT, NO GROW IN PERIOD) OR APPROVED OPAQUE FENCE MATERIAL. 10.GATE VALVE SHALL BE LOCATED AT OR NEAR CONNECTION TO FORCEMAIN.

Stuart

STANDARD UTILITY DETAILS
City of Stuart
Utilities & Engineering Department

121 S.W. Flagler Avenue, Stuart, Florida 34994

TYPICAL LIFT STATION SITE PLAN

DATE:	**OCTOBER 2021**	**SHEET NUMBER**
FILE NAME:	**2021 COS Std Details.dwg**	**55**

ENGINEERS & SURVEYORS
ENVIRONMENTAL

Lift Station Report

For

Sailfish Cay

Prepared By: Mark Landsman, E.I.

Engineering Design & Construction, Inc.
10250 SW Village Parkway, Suite 201
Port St. Lucie, FL 34987
Board of Professional Engineers Certificate of Authorization Number 9935

February 2022

R J KENNEDY
LICENSE
No. 56218
STATE OF FLORIDA
PROFESSIONAL ENGINEER

2-21-22

R.J. Kennedy, P.E. #56218 Date
10250 SW Village Parkway, Suite 201
Port St. Lucie, FL 34987 (772) 462-2455

1.0 Introduction

The project known as Sailfish Cay proposes to develop a vacant lot into a 60-unit multi-family residential community at 751 SE Central Parkway in Stuart, Florida. The site has an existing lift station known as Station #37 – Towne Park. A lift station test form provided by the City of Stuart details some of the design aspects of the lift station. A copy of the test form is attached to this report. Since the lift station is existing, anti-flotation calculations are not provided.

2.0 ERC Determination

The city of Stuart defines an Equivalent Residential Connection (ERC) as 250 gallons of usage per day. The existing lift station currently serves condominiums known as Towne Park North consisting of 96 units and 1 clubhouse. Since each condo unit is residential and the clubhouse is a low intensity user of wastewater, each unit (including the clubhouse) accounts for 1 ERC. The proposed Sailfish Cay community proposes 60 townhomes with 1 pool cabana. Each proposed unit accounts for 1 ERC, therefore, the lift station proposes to serve a total of 158 ERC's or 39,500 gallons per day.

3.0 Lift Station Design

Since the lift station is existing, the float elevations are fixed. No modifications to the float elevations are proposed. The station has 2 alternating Flygt MT 3102 pumps with 464/162mm impellers. A copy of the pump curve is attached to this report. The first set of lift station calculations analyzes the existing conditions of the lift station, while the second set of calculations analyzes the proposed conditions of the lift station which include existing and future flows. A pressure chart provided by the City of Stuart for an adjacent lift station indicates a pressure of approximately 10 psi. After pipe loss and minor losses, it is assumed that the connecting pressure is approximately 11 psi. The existing pump impellers (464/162mm) under the existing conditions are capable of developing 82.9 GPM at 38.9 TDH. These impellers were not capable of handling the additional

flows due to the new development, therefore an upgrade to a 463/172mm impeller is required. The proposed impeller upgrade is capable of developing 144.3 GPM at 41.8 TDH in the proposed condition.

4.0 Conclusion

The Sailfish Cay project proposes to develop a 60-unit multi-family community that will connect to an existing lift station. The station proposes to service 158 units which equals 158 ERC's (39,500 GPD). An upgrade to the existing impellers is required for the pumps to serve the additional flows. The impellers need to be upgraded from the existing 464/162mm impellers to 463/172mm impellers.

The following attachments are included with this report:

- Lift Station Calculations
- Pump Data – Existing Impeller
- Pump Data – Proposed Impeller
- Lift Station Test Form
- Pressure Data

Lift Station Data Entry (Connecting Pressure = 11 PSI provided by City of Stuart)

Project: 21-353 Sailfish Cay
Engineer: RJK
Reg. No. 56218
Date: 2/15/2022

Company: Engineering, Design & Construction, Inc.
Calc'd By: MDL
Checked By: RJK

ESTIMATED FLOWS

Establishment	UNITS	ERC Factor	ERCs	GPD
Existing Flows from Towne Parke North	0.00	1.0000	0.00	-
96 Existing Units and 1 Clubhouse	97.00	1.0000	97.00	24,250
	0.00	0.0000	0.00	-
	0.00	0.0000	0.00	-
	0.00	0.0000	0.00	-
	0.00	0.0000	0.00	-
	0.00	0.0000	0.00	-
Other (Not Listed):	0.00	0.0000	0.00	-
		Total	**97.00**	**24,250**

Average Daily Flow:

GPD	Hours of Operation	ADF (GPM)
24,250.00	24.00	16.84

For lift station design use 17.00

Maximum Daily Flow:

ADF (GPM)	Peaking Factor	MDF (GPM)	MDF/GPD
17.00	2.0	34.00	48,960.00

ADF (gpd)	Peak Hourly Factor
0 - 100,000	4.0
100,000 - 250,000	3.5
250,000 - 1,000,000	3.0
> 1,000,000	2.5

Peak Hourly Flow:

ADF (GPM)	Peaking Factor	PHF (GPM)	PHF/GPD
17.00	4.0	68.00	97,920.00

Station Design:

Wet-well Rim Elevation	12.94	NAVD
Discharge Elevation	8.94	NAVD
Influent Elevation	3.77	NAVD
Alarm Elevation	4.69	NAVD
Lag Pump On Elevation	3.61	NAVD
Lead Pump On Elevation	2.77	NAVD
Pump Off Elevation	1.86	NAVD
Wet-well Invert Elevation	-0.06	NAVD
Inside Diameter of Wet-Well	6.00	ft
Wet-Well Wall Thickness	0.25	ft
Top Slab Thickness	0.25	ft
Bottom Slab Thickness	1.33	ft
Bottom Slab Extension	2.00	ft

Force Main Design:

	Diameter [in]	Length [ft]
Discharge Pipe ->	4.00	9.00
Forcemain ->	6.00	950.00
	2.00	0.00

Pumps:

Model	Flygt - 3102 MT
HP	5
Impeller	464/162 mm
Voltage	240
Phase	3
RPM	1800
Shutoff Head	44

Total Dynamic Head

Dynamic Head Conditions:

Receiving Force Main - psi to feet conversion: 11.00 psi 25.38 ft

Static Lift Pump Off Elev. 1.86 NAVD Effluent Pipe Max Height 8.94 NAVD 7.08 ft

Total Static Head 32.46 ft

Force Main Minor Losses:

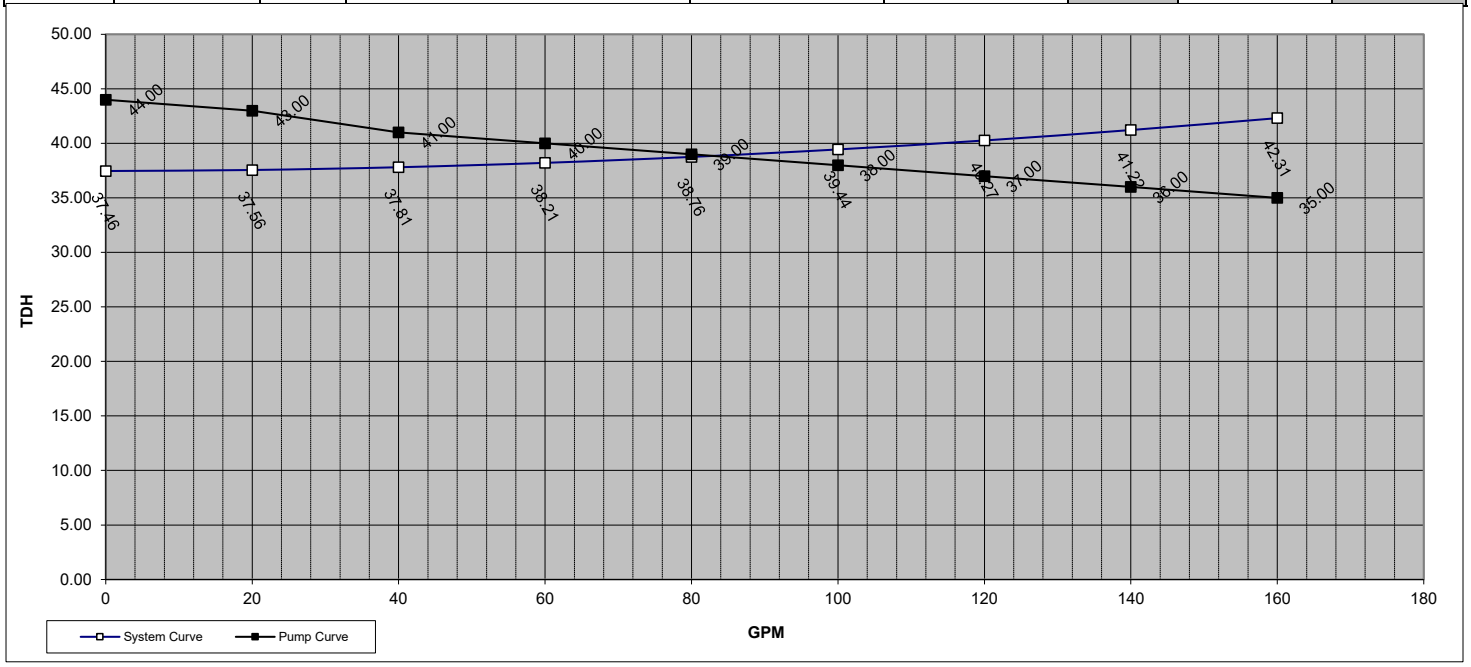
Fitting Loss in feet varies with velocity.

fitting (loss)	number	"k" value	No. x k
entrance/exit	2	1.00	2.00
90° Bend	3	0.80	2.40
45° Elbow	0	0.20	0.00
Cross - Branch	1	0.75	0.75
Tee - Branch	0	1.28	0.00
Plug Valve	0	0.77	0.00
Seat Gate Valve	1	0.17	0.17
Swing Check Valve	1	2.00	2.00
		Total (K)=	7.32

Force Main Friction Loss Formula: $H_p = 10.44L(Q^{1.85})/(C^{1.85}D^{4.8655})$

Flow Increment =	20
PVC Pipe Friction Factor - C =	120

Flow GPM	Flow CFS	Velocity ft/sec	Pipe Loss (h_p) ft	Minor Loss (h_f) ft	Total Static Head ft	Station Loss ft	TDH ft	Pumping Head ft
0	0.000	0.00	**0.00**	0	32.46	5	37.46	44.00
20	0.045	0.51	**0.06**	0.0296	32.46	5	37.56	43.00
40	0.089	1.02	**0.23**	0.1185	32.46	5	37.81	41.00
60	0.134	1.53	**0.48**	0.2667	32.46	5	38.21	40.00
80	0.178	2.04	**0.82**	0.4742	32.46	5	38.76	39.00
100	0.223	2.55	**1.24**	0.7409	32.46	5	39.44	38.00
120	0.267	3.06	**1.73**	1.0669	32.46	5	40.27	37.00
140	0.312	3.57	**2.31**	1.4522	32.46	5	41.22	36.00
160	0.357	4.09	**2.95**	1.8968	32.46	5	42.31	35.00



Conclusion: The **Flygt - 3102 MT w/ 464/162 mm Impeller** will develop **82.9** GPM @ **38.9** TDH

Forcemain Velocity at Grinder Flow:

V = 0.408 x (Q / (d)^2) **V = 2.11 ft/s**

Operating Range

Current Operating Parameters

Pump Rate [GPM]	ADF [GPM]	Optimum Cycle Time [Min]
82.88	17.00	30.0

Wet-well Volume Per Foot

Wet-well Diameter	Formula	Gal./Foot
6.00	$Vol = Diam^2 \times \frac{\pi}{4} \times \frac{7.4805\ gal}{ft^3}$	211.51

Optimum Operating Range Lead Pump (Based on optimum Cycle Time)

Optimum Volume [Gal]	Gal./Foot	Optimum Operating Range		
405.39	211.51		1.92	Feet
		Current lift station design:	0.91	Feet
			192.47	Gallons

Cycle/Run/Starts:

ADF (GPM) =	17.00	ADF CY. T. = Vol/(Pump Rate-ADF) + Vol/ADF	**14.24**	**Min.**
		ADF Run T. = Vol/(Pump Rate-ADF)	**2.92**	**Min.**
		ADF Starts Per Hour = Formula = 60/CY.T	**4.21**	**Starts**
MDF (GPM) =	34.00	MDF CY. T. = Vol/(Pump Rate-MDF) + Vol/MDF	**9.60**	**Min.**
		MDF Run T. = Vol/(Pump Rate-MDF)	**3.94**	**Min.**
		MDF Starts Per Hour = Formula = 60/CY.T	**6.25**	**Starts**
PHF (GPM) =	68.00	PHF CY. T. = Vol/(Pump Rate-PHF) + Vol/PHF	**15.77**	**Min.**
		PHF Run T. = Vol/(Pump Rate-PHF)	**12.94**	**Min.**
		PHF Starts Per Hour = Formula = 60/CY.T	**3.81**	**Starts**

Lift Station Data Entry (Connecting Pressure = 11 PSI provided by City of Stuart)

Project: 21-353 Sailfish Cay
Engineer: RJK
Reg. No. 56218
Date: 2/15/2022

Company: EDC, Inc.
Calc'd By: MDL
Checked By: RJK

ESTIMATED FLOWS

Establishment	UNITS	ERC Factor	ERCs	GPD
Existing Flows from Towne Parke North	0.00	0.0000	0.00	-
96 Existing Units and 1 Clubhouse	97.00	1.0000	97.00	24,250
Proposed Flows from Sailfish Cay	0.00	0.0000	0.00	-
60 Proposed Units and 1 Pool Cabana	61.00	1.0000	61.00	15,250
	0.00	0.0000	0.00	-
	0.00	0.0000	0.00	-
	0.00	0.0000	0.00	-
Other (Not Listed):	0.00	0.00	0.00	-
		Total	**158.00**	**39,500**

Average Daily Flow:

GPD	Hours of Operation	ADF (GPM)
39,500.00	24.00	27.43

For lift station design use 28.00

Maximum Daily Flow:

ADF (GPM)	Peaking Factor	MDF (GPM)	MDF/GPD
28.00	2.0	56.00	80,640.00

ADF (gpd)	Peak Hourly Factor
0 - 100,000	4.0
100,000 - 250,000	3.5
250,000 - 1,000,000	3.0
> 1,000,000	2.5

Peak Hourly Flow:

ADF (GPM)	Peaking Factor	PHF (GPM)	PHF/GPD
28.00	4.0	112.00	161,280.00

Station Design:

Wet-well Rim Elevation	12.94	NAVD
Discharge Elevation	8.94	NAVD
Influent Elevation	3.77	NAVD
Alarm Elevation	3.77	NAVD
Lag Pump On Elevation	3.61	NAVD
Lead Pump On Elevation	2.77	NAVD
Pump Off Elevation	1.86	NAVD
Wet-well Invert Elevation	-0.06	NAVD
Inside Diameter of Wet-Well	6.00	ft
Wet-Well Wall Thickness	0.67	ft
Top Slab Thickness	0.25	ft
Bottom Slab Thickness	0.25	ft
Bottom Slab Extension	2.00	ft

Force Main Design:

	Diameter [in]	Length [ft]
Discharge Pipe ->	4.00	9.00
Force main ->	6.00	950.00
	10.00	0.00

Pumps:

Model	Flygt - 3102 MT
HP	5
Impeller	463/172 mm
Voltage	240
Phase	3
RPM	1800
Shutoff Head	51

Total Dynamic Head

Dynamic Head Conditions:

Receiving Force Main - psi to feet conversion: 11.00 psi 25.38 ft

Static Lift Pump Off Elev. 1.86 NAVD *Force Main Elev. = 8.94 NAVD 7.08 ft

Total Static Head 32.46 ft

Force Main Minor Losses:

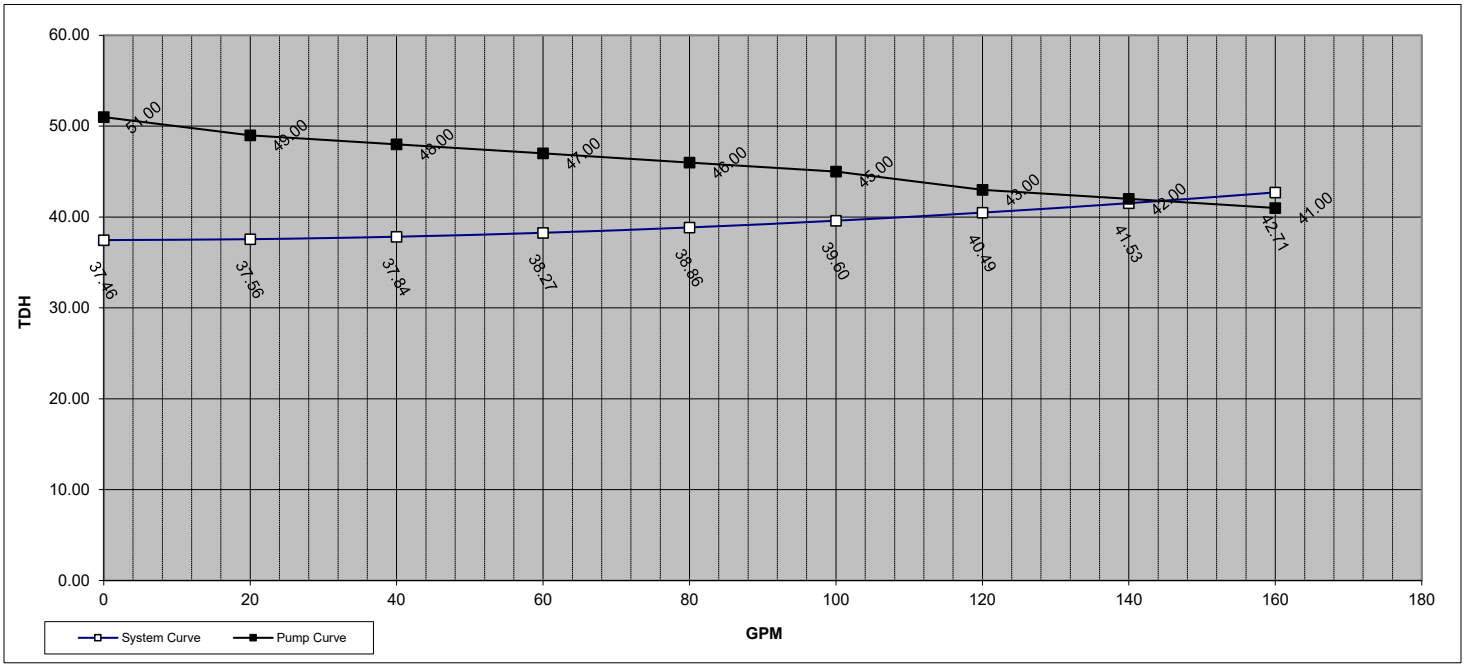
Fitting Loss in feet varies with velocity.

fitting (loss)	number	"k" value	No. x k
entrance/exit	2	1.00	2.00
90° Bend	3	0.80	2.40
45° Elbow	0	0.20	0.00
Cross - Branch	1	0.75	0.75
Tee - Branch	0	1.28	0.00
Plug Valve	0	0.77	0.00
Ball Valve	1	1.20	1.20
Swing Valve	1	2.50	2.50
		Total (K)=	8.85

Force Main Friction Loss Formula: $H_p = 10.44L(Q^{1.85})/(C^{1.85}D^{4.8655})$

Flow Increment =	**20**
PVC Pipe Friction Factor - C =	**120**

Flow GPM	Flow CFS	Velocity ft/sec	Pipe Loss (h_p) ft	Minor Loss (h_f) ft	Total Static Head ft	Station Loss ft	TDH ft	Pumping Head ft
0	0.000	0.00	**0.00**	0	32.46	5	37.46	51.00
20	0.045	0.51	**0.06**	0.0358	32.46	5	37.56	49.00
40	0.089	1.02	**0.23**	0.1433	32.46	5	37.84	48.00
60	0.134	1.53	**0.48**	0.3225	32.46	5	38.27	47.00
80	0.178	2.04	**0.82**	0.5733	32.46	5	38.86	46.00
100	0.223	2.55	**1.24**	0.8958	32.46	5	39.60	45.00
120	0.267	3.06	**1.73**	1.2899	32.46	5	40.49	43.00
140	0.312	3.57	**2.31**	1.7558	32.46	5	41.53	42.00
160	0.357	4.09	**2.95**	2.2932	32.46	5	42.71	41.00



Conclusion: **The** **Flygt - 3102 MT w/ 463/172 mm Impeller** **will develop** **144.3** **GPM @** **41.8** **TDH**

Forcemain Velocity at Grinder Flow:

V = 0.408 x (Q / (d)^2) **V =** **3.68** **ft/s**

Operating Range

Current Operating Parameters

Pump Rate [GPM]	ADF [GPM]	Optimum Cycle Time [Min]
144.34	28.00	30.0

Wet-well Volume Per Foot

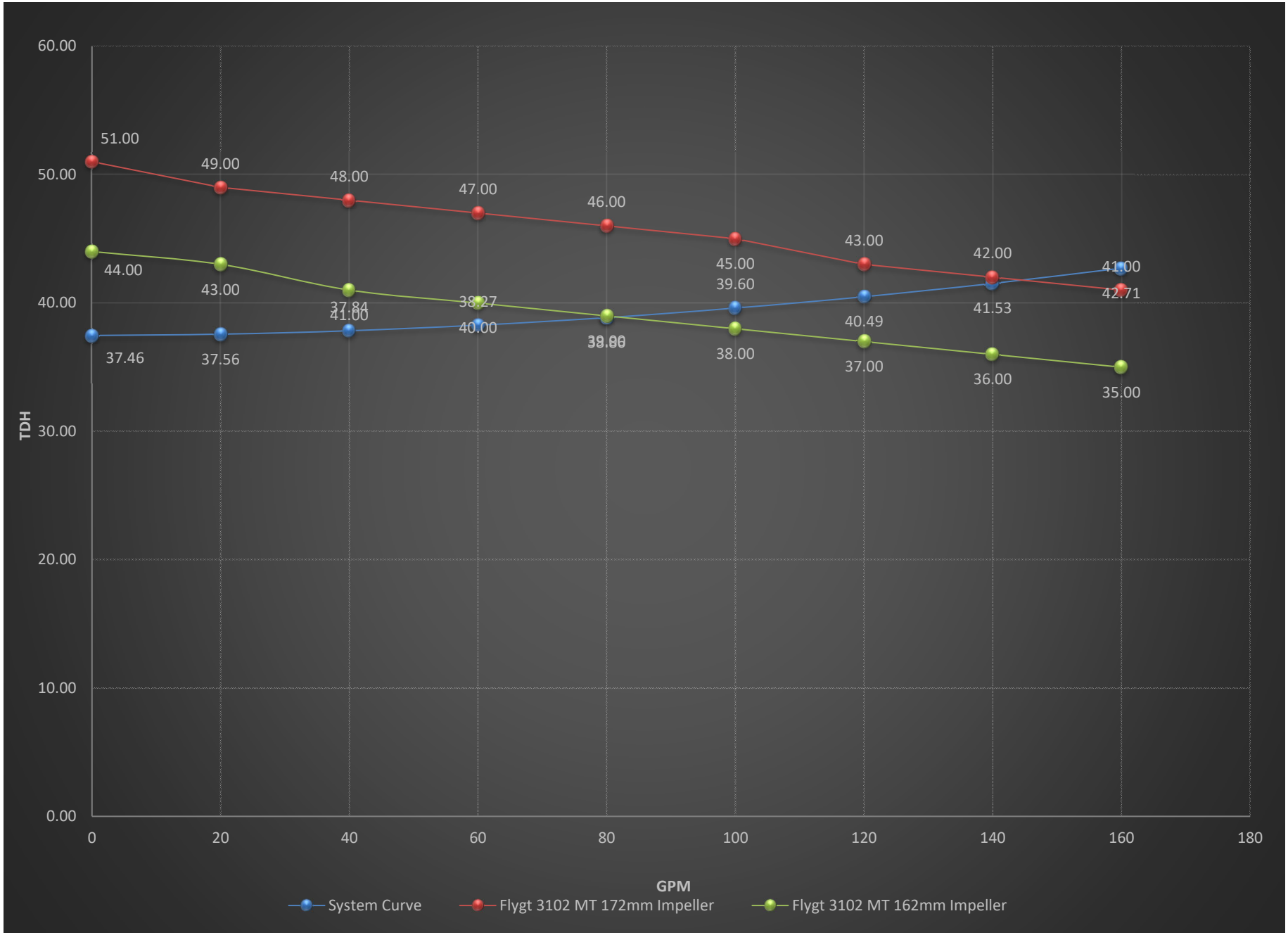
Wet-well Diameter	Formula	Gal./Foot
6.00	$Vol = Diam^2 \times \frac{\pi}{4} \times \frac{7.4805\,gal}{ft^3}$	211.51

Optimum Operating Range Lead Pump (Based on optimum Cycle Time)

Optimum Volume [Gal]	Gal./Foot	Optimum Operating Range		
677.05	211.51		3.20	Feet
		Current lift station design:	0.91	Feet
			192.47	Gallons

Cycle/Run/Starts:

ADF (GPM) =	28.00	ADF CY. T. =	Vol/(Pump Rate-ADF) + Vol/ADF	**8.53**	**Min.**
		ADF Run T. =	Vol/(Pump Rate-ADF)	**1.65**	**Min.**
		ADF Starts Per Hour =	Formula = 60/CY.T	**7.04**	**Starts**
MDF (GPM) =	56.00	MDF CY. T. =	Vol/(Pump Rate-MDF) + Vol/MDF	**5.62**	**Min.**
		MDF Run T. =	Vol/(Pump Rate-MDF)	**2.18**	**Min.**
		MDF Starts Per Hour =	Formula = 60/CY.T	**10.68**	**Starts**
PHF (GPM) =	112.00	PHF CY. T. =	Vol/(Pump Rate-PHF) + Vol/PHF	**7.67**	**Min.**
		PHF Run T. =	Vol/(Pump Rate-PHF)	**5.95**	**Min.**
		PHF Starts Per Hour =	Formula = 60/CY.T	**7.82**	**Starts**


60.00
50.00
40.00
30.00
20.00
10.00
0.00
TDH
0
20
40
60
80
100
120
140
160
180
GPM
51.00
49.00
48.00
47.00
46.00
45.00
43.00
42.00
42.71
44.00
43.00
41.00
40.00
39.60
41.53
41.00
37.46
37.56
40.49
38.00
37.00
36.00
35.00
System Curve
Flygt 3102 MT 172mm Impeller
Flygt 3102 MT 162mm Impeller

O'ROURKE
ENGINEERING & PLANNING

December 10, 2021

Ryan Johnston
751 SE Central LLC 224
Chimney Corner Lane, Suite 3032
Jupiter FL 33458

Re: 751 SE Central Parkway

Dear Mr. Johnston:

O'Rourke Engineering & Planning has completed the analysis of the traffic impacts associated with the change in land use from commercial to multi -family land use for the 4.88 acres on Central Parkway. **Figure 1** illustrates the project location. The analysis is presented below.

Traffic Analysis

The proposed change in land use has to address the worst-case traffic generator in the existing future land use to the worst- case traffic generator in the proposed future land use. The 4.88 acres has an existing future land use of Commercial. Under commercial land use, an FAR of 1.5 is allowed. Applying the 1.5 FAR to 4.88 acres yields 318,859 square feet. A worst-case scenario would be retail/commercial such as shopping center.

The proposed future land use is multi family residential. Under multi family, a maximum of 30 units per acres is allowed under a planned unit development. At 30 units per acre, the project would yield 146 dwelling units.

The trip generation associated with each of the potential uses, was calculated using ITE Trip Generation, 11th Edition. **Table 1** summarizes the trip generation and the change in trip generation.

As shown, the change in land use would result in a decrease in 11,151 daily trips, 269 AM peak hour trips and 1,027 PM peak hour trips.

Because there is a decrease in land use, additional analyses are not required.

Conclusion

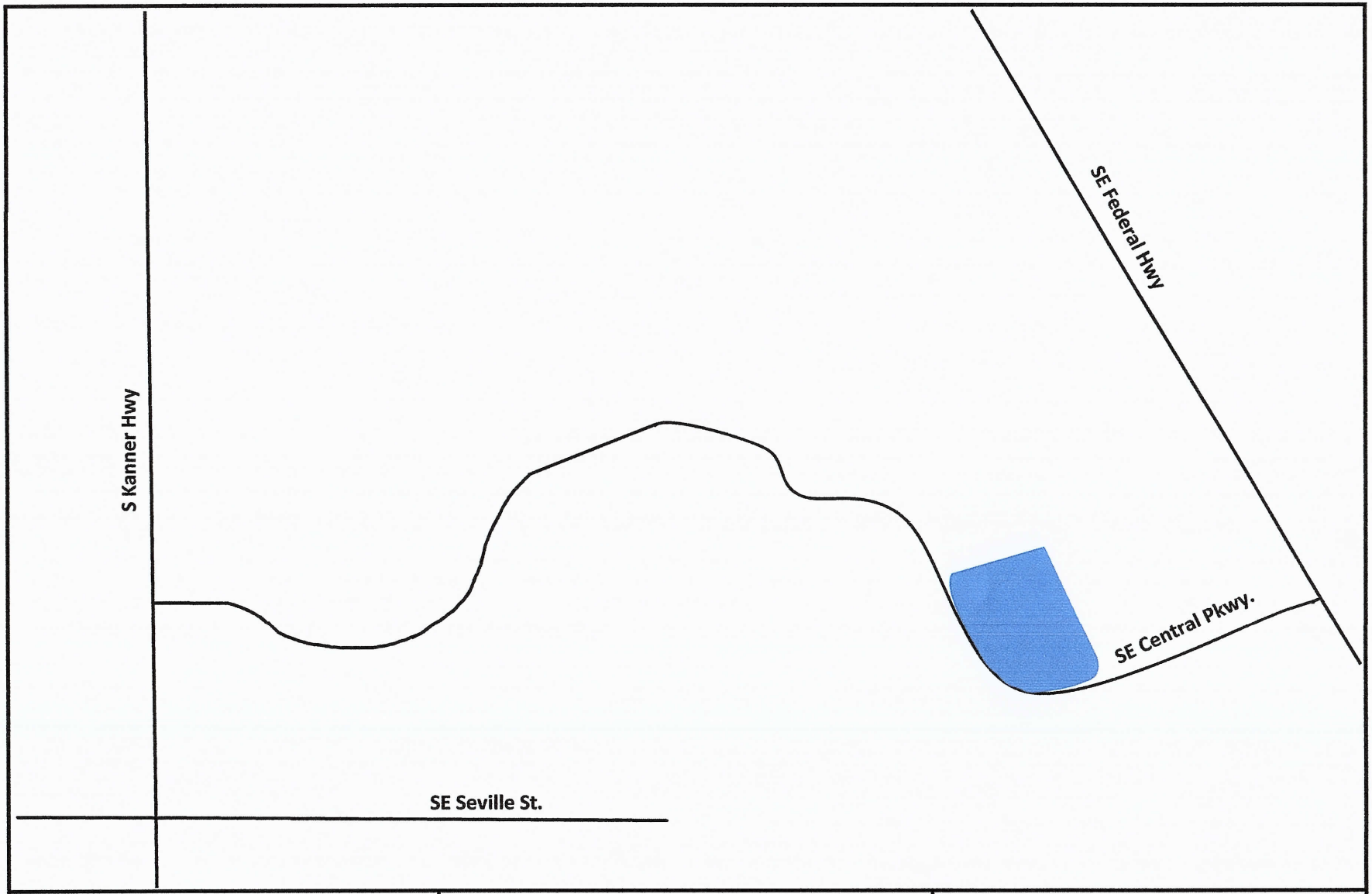
The trip generation analysis demonstrates that the change in land use will result in a decrease in trip generation potential on the development.

It has been a pleasure working with you.

Respectfully submitted,
O'ROURKE ENGINEERING

Susan E. O'Rourke, P.E.
Civil Engineering – Traffic

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole Street Stuart, Florida 34994 772-781-7918	Professional Engineer Susan E. O'Rourke, P.E. Date signed and sealed: 1/13/2022 License #: 42684



NTS

O'ROURKE ENGINEERING & PLANNING

22 SE Seminole Street
Stuart, Fl, 34994

Job Number:

Date: 11-1-21

Legend

= Project Location

Figure 1

Project Location

Sailfish Cay

Sailfish Cay Project Location 11.1.2021

Table 1 - Trip Generation

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Shopping Center (Existing)	820	318,859	Sft	T = 37.01(X)	50%	50%	5,901	5,900	11,801
Multifamily Housing-Mid-Rise (Proposed)	221	146	DU	T = 4.77(X) - 46.46	50%	50%	325	325	650
TOTAL (Proposed - Existing)							**(5,576)**	**(5,575)**	**(11,151)**

Source: ITE 11th Edition Trip Generation Rates

Table 1b: AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Shopping Center (Existing)	820	318,859	Sft	T = 0.59(X) + 133.55	62%	38%	200	122	322
Multifamily Housing-Mid-Rise (Proposed)	221	146	DU	T = 0.44(X) - 11.61	23%	77%	12	41	53
TOTAL (Proposed - Existing)							**(188)**	**(81)**	**(269)**

Source: ITE 11th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Shopping Center (Existing)	820	318,859	Sft	T =3.40(X)	48%	52%	520	564	1,084
Multifamily Housing-Mid-Rise (Proposed)	221	146	DU	T = 0.39(X) + 0.34	61%	39%	35	22	57
TOTAL (Proposed - Existing)							**(485)**	**(542)**	**(1,027)**

Source: ITE 11th Edition Trip Generation Rates

O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS

FOR

Sailfish Cay

Prepared For:

Ryan Johnston
751 SE Central LLC
224 Chimney Corner Lane, Suite 3032
Jupiter FL 33458

Prepared By:

O'Rourke Engineering & Planning
22 SE Seminole Street
Stuart, FL 34994
(772)781-7918

November 1, 2021
Revised January 5, 2022
Revised February 21, 2022

MR21105.0

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole Street Stuart, Florida 34994 (772) 781-7918	Susan E O'Rourke State of Florida, Professional Engineer, License No. 42684 This Document has been electronically signed and sealed by Susan E O'Rourke, PE on 2/22/2022 using a **SHA** authentication code. Printed copies of this document are not considered signed and sealed and the **SHA** authentication code must be verified on any electronic copies.

O'ROURKE
ENGINEERING & PLANNING

November 1, 2021

Mr. Ryan Johnston
751 SE Central LLC
224 Chimney Corner Lane, Suite 3032
Jupiter FL 33458

Re: Sailfish Cay

Dear Mr. Johnston:

O'Rourke Engineering & Planning has completed the traffic analysis for the proposed residential development consisting of 60 multifamily residential dwelling units to be located east of S. Kanner Highway and north of Central Parkway in Stuart, Martin County. The steps in the analysis and the ensuing results are presented herein.

It has been a pleasure working with you.

Respectfully submitted,
O'ROURKE ENGINEERING & PLANNING

Susan E. O'Rourke, P.E.
President

22 SE Seminole Street | Stuart, FL 34994 | 772-781-7918 | SEORourke@comcast.net

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a traffic analysis for the proposed residential development located on Central Parkway. **Figure 1** illustrates the project location. **Attachment A** includes the project site plan. The purpose of this analysis is to determine the impact of the development on the roadway.

PROJECT DESCRIPTION

The project site is located on the north side of Central Parkway in Stuart. The development consists of 60 multifamily dwelling units. The project will have full access off Central Parkway with no turn lanes proposed. The project is expected to be built out by 2023.

Trip Generation — Land Use Code 220 - Multi Family Low Rise rates from the ITE Trip Generation 11th Edition were applied to the 60 units.

The trip generation of the site is summarized in **Table 1**.

As shown, the project will generate 41 AM peak hour trips with 10 in and 31 out and 46 PM peak hour trips with 29 in and 17 out.

Sailfish Cay Project Location 11.1.2021

Table 1 - Trip Generation

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily - Low Rise	220	60	DU	T=6.41(X)+75.31	50%	50%	230	230	460

Source: ITE 11th Edition Trip Generation Rates

Table 1b: AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily - Low Rise	220	60	DU	T =0.31(X)+22.85	24%	76%	10	31	41

Source: ITE 11th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily - Low Rise	220	60	DU	T =0.43(X)+20.55	63%	37%	29	17	46

Source: ITE 11th Edition Trip Generation Rates

PROJECT DISTRIBUTION/ ASSIGNMENT/ IMPACT

To determine the project impact in 2023, the project traffic was assigned to the network. **Figure 2** illustrates the project assignment. Although the project is not significant on any links, the link analysis was included for informational purposes. The existing counts, capacity and growth rates were taken from the Martin County 2019 Roadway Level of Service Report and a count made on Central Parkway. **Table 2** - Percent Impact and **Table 3** - Link Analysis are included as **Attachment B**. Table 3 demonstrates the links will operate at an acceptable LOS at buildout.

The applicable pages from the Martin County 2019 Roadway Level of Service Report and background traffic data to include The Loft development are included in **Attachment C**.

The need for a right turn lane was evaluated against FDOT thresholds. With 14 right turns as the highest expected volumes, a right-turn lane is not needed. The left-turn threshold also is not met. The threshold and nomographs are included in **Attachment D**.

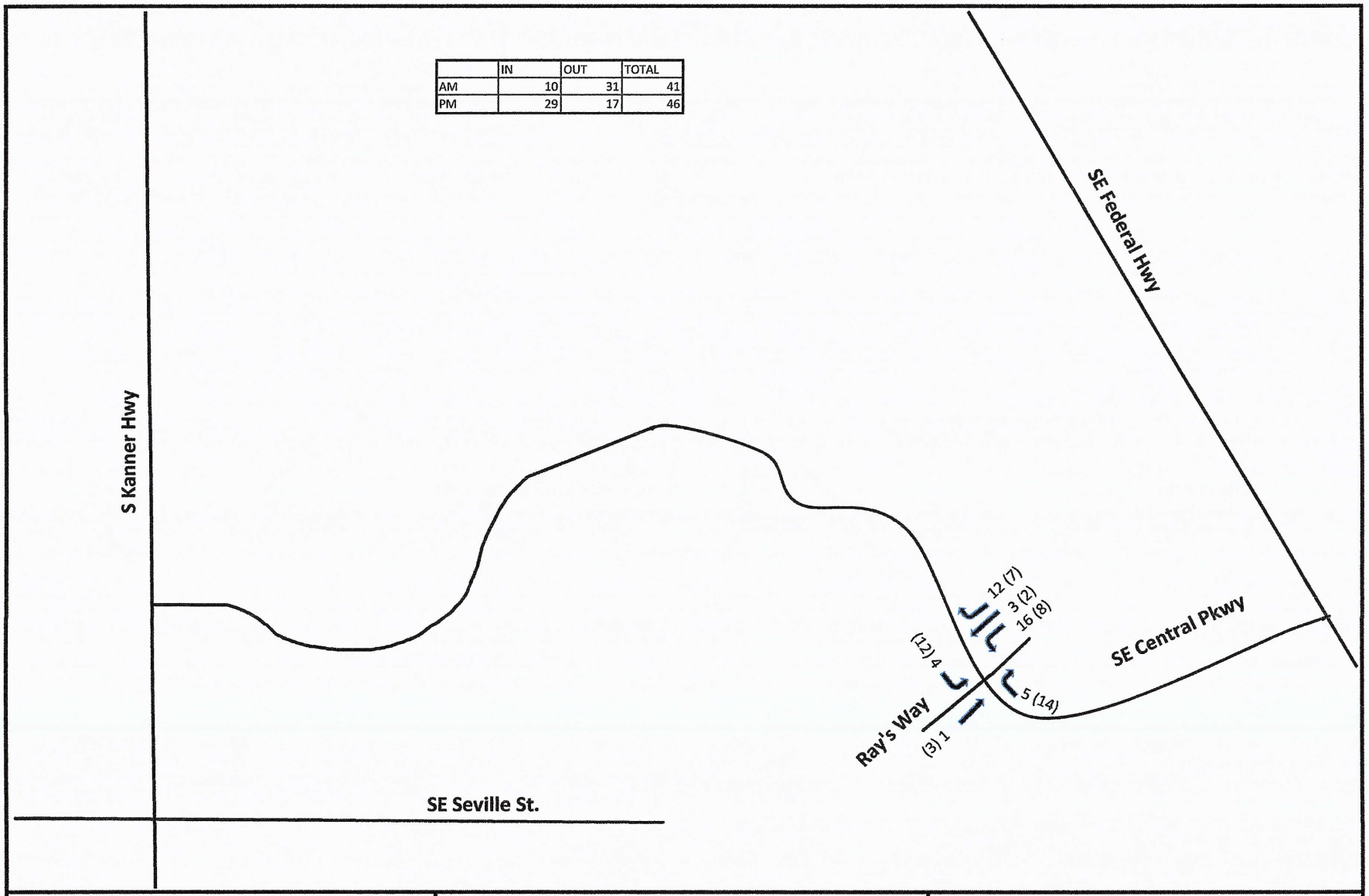
DRIVEWAY VOLUMES

The project will have full access to SE Central Parkway at Ray's Way. The driveway volumes are shown in **Figure 3**. The HCS analysis are included in Attachment D. The driveway will accommodate the minor increase in traffic. The driveway will operate at LOS B in the AM peak hour and LOS B in the PM peak hour. Traffic from The Loft was also included at the driveway.

CONCURRENCY REVIEW/ CONCLUSION

The Sailfish Cay development will have a traffic impact of 41 AM peak hour trips with 10 in and 31 out and 46 PM peak hour trips with 29 in and 17 out. These trips will not cause levels of service to fall below acceptable levels in the future. Therefore, the project does not require additional analysis and is deemed to be consistent with city transportation concurrency requirements.

Sailfish Cay % Asiignment 11.1.2021



	IN	OUT	TOTAL
AM	10	31	41
PM	29	17	46

O'ROURKE ENGINEERING & PLANNING

NTS

22 SE Seminole Street
Stuart, Fl, 34994

Job Number:

Date: 11-1-21

Legend

X (X) = AM (PM)

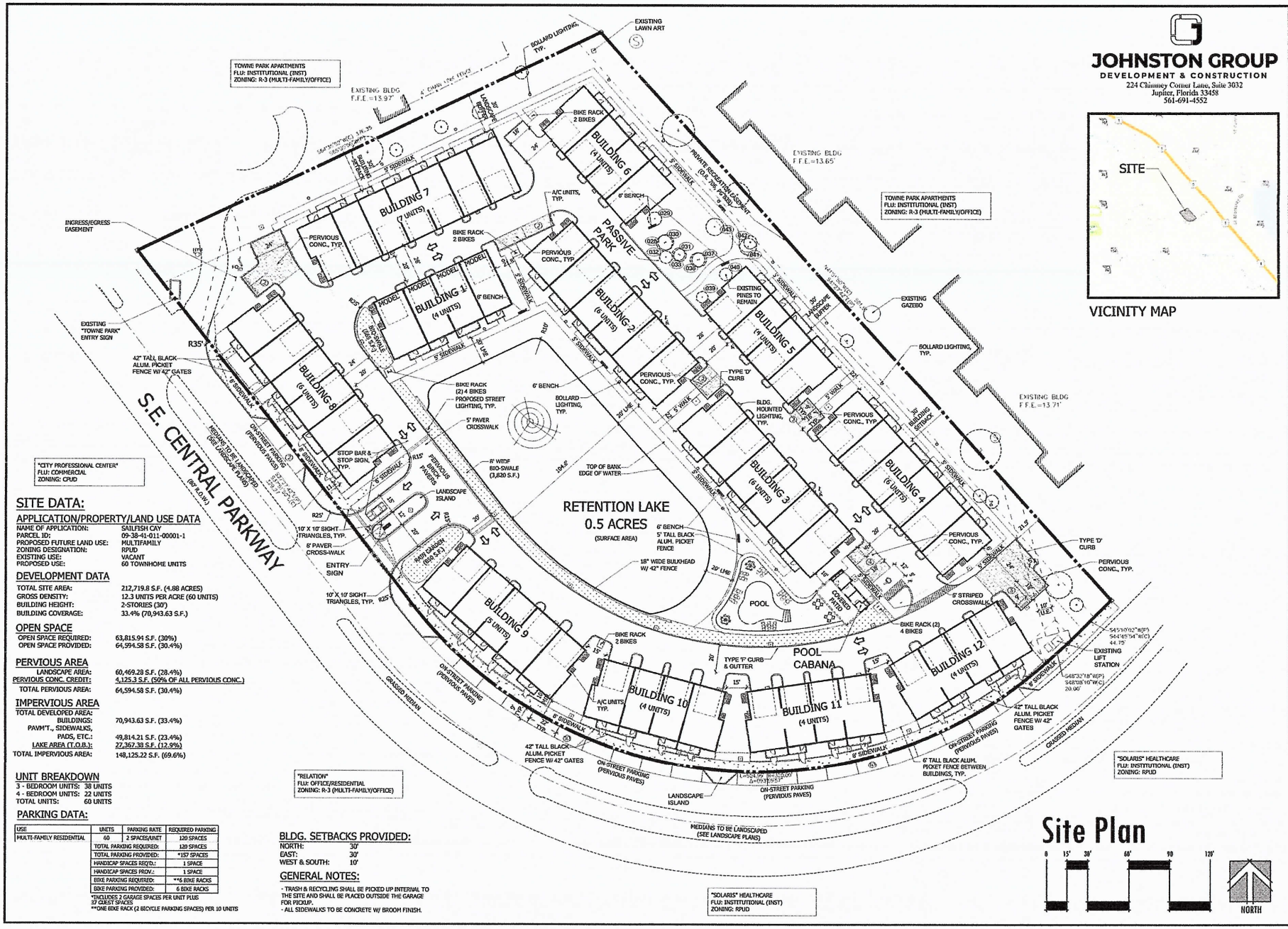
Figure 3

Driveway Volumes

Sailfish Cay

ATTACHMENT A

Site Plan



JOHNSTON GROUP
DEVELOPMENT & CONSTRUCTION
224 Chimney Corner Lane, Suite 3032
Jupiter, Florida 33458
561-691-4552

VICINITY MAP

SITE DATA:

APPLICATION/PROPERTY/LAND USE DATA

NAME OF APPLICATION:	SAILFISH CAY
PARCEL ID:	09-38-41-011-00001-1
PROPOSED FUTURE LAND USE:	MULTIFAMILY
ZONING DESIGNATION:	RPUD
EXISTING USE:	VACANT
PROPOSED USE:	60 TOWNHOME UNITS

DEVELOPMENT DATA

TOTAL SITE AREA:	212,719.8 S.F. (4.88 ACRES)
GROSS DENSITY:	12.3 UNITS PER ACRE (60 UNITS)
BUILDING HEIGHT:	2-STORIES (30')
BUILDING COVERAGE:	33.4% (70,943.63 S.F.)

OPEN SPACE

OPEN SPACE REQUIRED:	63,815.94 S.F. (30%)
OPEN SPACE PROVIDED:	64,594.58 S.F. (30.4%)

PERVIOUS AREA

LANDSCAPE AREA:	60,469.28 S.F. (28.4%)
PERVIOUS CONC. CREDIT:	4,125.3 S.F. (50% OF ALL PERVIOUS CONC.)
TOTAL PERVIOUS AREA:	64,594.58 S.F. (30.4%)

IMPERVIOUS AREA

TOTAL DEVELOPED AREA:	
BUILDINGS:	70,943.63 S.F. (33.4%)
PAVMT., SIDEWALKS, PADS, ETC.:	49,814.21 S.F. (23.4%)
LAKE AREA (T.O.B.):	27,367.38 S.F. (12.9%)
TOTAL IMPERVIOUS AREA:	148,125.22 S.F. (69.6%)

UNIT BREAKDOWN

3 - BEDROOM UNITS:	38 UNITS
4 - BEDROOM UNITS:	22 UNITS
TOTAL UNITS:	60 UNITS

PARKING DATA:

USE	UNITS	PARKING RATE	REQUIRED PARKING
MULTI-FAMILY RESIDENTIAL	60	2 SPACES/UNIT	120 SPACES
	TOTAL PARKING REQUIRED:		120 SPACES
	TOTAL PARKING PROVIDED:		*157 SPACES
	HANDICAP SPACES REQ'D.:		1 SPACE
	HANDICAP SPACES PROV.:		1 SPACE
	BIKE PARKING REQUIRED:		**6 BIKE RACKS
	BIKE PARKING PROVIDED:		6 BIKE RACKS

*INCLUDES 2 GARAGE SPACES PER UNIT PLUS 37 GUEST SPACES
**ONE BIKE RACK (2 BICYCLE PARKING SPACES) PER 10 UNITS

BLDG. SETBACKS PROVIDED:

NORTH:	30'
EAST:	30'
WEST & SOUTH:	10'

GENERAL NOTES:

- TRASH & RECYCLING SHALL BE PICKED UP INTERNAL TO THE SITE AND SHALL BE PLACED OUTSIDE THE GARAGE FOR PICKUP.
- ALL SIDEWALKS TO BE CONCRETE W/ BROOM FINISH.

Site Plan

0 15' 30' 60' 90 120'

Litterick Landscape Architecture
2740 SW Martin Downs Blvd. #199
Palm City, FL 34990
561-719-3874
JasonLA1677@yahoo.com

Sailfish Cay

751 Central Parkway Stuart, Florida

Landscape Architect of Record

Jason M. Litterick, ASLA (LA0001677)

Scale: 1" = 30'-0"

Designed:	JML
Drawn:	JML
Approved:	JML
Date:	11/5/21
Job no.	
Revisions:	1/7/22
	2/10/22

Sheet No.

SP-1

ATTACHMENT B

Percent Assignment
Link Analysis

Table 2a: Percent Impact - AM Peak Hour

Segment	From	To	Lanes	Is Project Traffic 5% or More of Capacity?	LOS D Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity
Kanner Highway (SR-76)	SR-714	US 1	6LD	No	3,020	6	20%	0.20%
US 1	SR-714	SR 5a	6LD	No	3,020	9	30%	0.30%
Central Pkwy	Kanner	SR 5	4LD	No	1,630	16	50%	0.98%

In	10
Out	31
Years Grown	4

B-1

Table 2b: Percent Impact - PM Peak Hour

Segment	From	To	Lanes	Is Project Traffic 5% or More of Capacity?	LOS D Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity
Kanner Highway (SR-76)	SR-714	US 1	6LD	No	3,020	6	20%	0.20%
US 1	SR-714	SR 5a	6LD	No	3,020	9	30%	0.30%
Central Pkwy	Kanner	SR 5	4LD	No	1,630	16	50%	0.98%

In	29
Out	17
Years Grown	4

Table 3a: Link Analysis - AM Peak Hour

Segment	From	To	Lanes	Is Project Traffic 5% or More of Capacity?	2019 Volume Peak Hour Peak Direction	Growth Rate	2023 Volume Peak Hour Peak Direction	LOS D Directional Peak Hour	Directional Peak Project Volume	Committed Background Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Kanner Highway (SR-76)	SR-714	US 1	6LD	No	1,006	1.005	1026	3,020	6	17	20%	0.20%	1032	Yes
US 1	SR-714	SR 5a	6LD	No	1,822	1.005	1859	3,020	9	10	30%	0.30%	1868	Yes
Central Pkwy	Kanner	SR 5	4LD	No	206	1.02	214	1,630	16	32	50%	0.98%	262	Yes

Note: Central Parkway reflects a 2021 count

In	10	**In:**	10
Out	31	**Out:**	31
Years Grown	4	**Years Grown:**	4

Table 3b: Link Analysis - PM Peak Hour

Segment	From	To	Lanes	Is Project Traffic 5% or More of Capacity?	2019 Volume Peak Hour Peak Direction	Growth Rate	2023 Volume Peak Hour Peak Direction	LOS D Directional Peak Hour	Directional Peak Project Volume	Committed Background Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Kanner Highway (SR-76)	SR-714	US 1	6LD	No	1,006	1.005	1026	3,020	6	18	20%	0.20%	1032	Yes
US 1	SR-714	SR 5a	6LD	No	1,822	1.005	1859	3,020	9	10	30%	0.30%	1868	Yes
Central Pkwy	Kanner	SR 5	4LD	No	206	1.02	248	1,630	16	34	50%	0.98%	298	Yes

Note: Central Parkway reflects a 2021 count

In	29	**In:**	29
Out	17	**Out:**	17
Years Grown	4	**Years Grown:**	4

ATTACHMENT C

Martin County Roadway Level of Service Report
Background Data

Martin County 2019 Roadway Level of Service Inventory Report

Road Name	From	To	Type	Generalized Service Capacity	2019 Average Annual Daily Traffic	2019 Peak Hour Directional Volume	2019 Generalized LOS	Avg. Annual Growth Rate
Salerno Rd	SR-5	Commerce Ave	Class II: 2-Ln Undivided	750	9,794	440	D	8.0%
Salerno Rd	Commerce Ave	CR-A1A	Class II: 2-Ln Undivided	750	7,955	346	C	0.5%
Seabranch Blvd	Doubletree Dr	SR-5	Class I: 4-Ln Divided	2000	6,693	335	C	0.5%
Sewalls Pt Rd	SR-A1A	Palmer St	2-Ln Undivided Non-State	675	9,496	470	D	3.0%
Skyline Dr	CR-707A	CR-707	2-Ln Undivided Non-State	675	1,634	84	C	0.5%
SR-5 (US-1)	Palm Beach County	CR-A1A	Transitional 4-Ln Uninter /Divided Flow	3110	20,848	1,062	A/B	1.9%
SR-5 (US-1)	CR-A1A	CR-708	Class I: 4-Ln Divided	2000	17,201	1,001	C	3.1%
SR-5 (US-1)	CR-708	Osprey St	Class I: 4-Ln Divided	2000	24,807	1,670	C	2.2%
SR-5 (US-1)	Osprey St	Seabranch Blvd	Class I: 4-Ln Divided	2000	23,579	1,046	C	0.6%
SR-5 (US-1)	Seabranch Blvd	Cove Rd	Class I: 6-Ln Divided	3020	30,507	1,426	C	0.5%
SR-5 (US-1)	Cove Rd	Salerno Rd	Class I: 6-Ln Divided	3020	32,412	1,433	C	0.5%
SR-5 (US-1)	Salerno Rd	Monroe St	Class I: 6-Ln Divided	3020	40,491	1,673	C	0.5%
SR-5 (US-1)	Monroe St	Indian St	Class I: 6-Ln Divided	3020	37,491	1,859	C	0.5%
SR-5 (US-1)	Indian St	SR-714	Class I: 6-Ln Divided	3020	45,498	2,267	C	0.5%
SR-5 (US-1)	SR-714	SR-5A	Class I: 6-Ln Divided	3020	37,271	1,822	C	0.5%
SR-5 (US-1)	SR-5A(Cut-off Rd)	SR-76	Class I: 6-Ln Divided	3020	32,616	1,625	C	0.5%
SR-5 (US-1)	SR-76	Palm City Rd	Class II: 6-Ln Divided	2520	47,483	1,986	D	0.5%
SR-5 (US-1)	Palm City Rd	Joan Jefferson Wy	Class II: 6-Ln Divided	2520	54,897	2,473	D	0.5%
SR-5 (US-1)	Joan Jefferson Wy	Wright Blvd	Class I: 6-Ln Divided	3020	59,873	2,874	C	0.5%
SR-5 (US-1)	Wright Blvd	Baker Rd	Class I: 6-Ln Divided	3020	52,644	2,491	C	0.5%
SR-5 (US-1)	Baker Rd	Britt Rd	Class I: 6-Ln Divided	3020	51,826	2,481	C	0.5%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB) and Murphy Rd (PM/NB).

Martin County 2019 Roadway Level of Service Inventory Report

Road Name	From	To	Type	Generalized Service Capacity	2019 Average Annual Daily Traffic	2019 Peak Hour Directional Volume	2019 Generalized LOS	Avg. Annual Growth Rate
SR-732 (Jensen Beach Blvd)	SR-5	Green River Pkwy	Class I: 4-Ln Divided	2000	25,949	1,349	C	0.5%
SR-732 (Jensen Beach Blvd)	Green River Pkwy	CR-723	Class I: 4-Ln Divided	2000	23,804	1,154	C	0.5%
SR-76 (Kanner Hwy)	SR-15	SR-710	Uninterrupted Rural Hwy: 2-Ln Undivided	740	2,134	111	A/B	6.1%
SR-76 (Kanner Hwy)	SR-710	CR-708	Uninterrupted Rural Hwy: 2-Ln Undivided	740	3,412	151	A/B	0.9%
SR-76 (Kanner Hwy)	CR-708	CR-711/CR-76A	Transitional 2-Ln Uninter /Undivided Flow	1200	2,889	168	A/B	0.5%
SR-76 (Kanner Hwy)	CR-711/CR76A	Locks Rd	Class I: 4-Ln Divided	2000	13,401	831	C	1.7%
SR-76 (Kanner Hwy)	Locks Rd	Jack James	Class I: 4-Ln Divided	2000	19,231	920	C	0.5%
SR-76 (Kanner Hwy)	Jack James	Cove Rd	Class I: 6-Ln Divided	3020	43,880	2,372	C	0.6%
SR-76 (Kanner Hwy)	Cove Rd	Salerno Rd	Class I: 6-Ln Divided	3020	34,493	1,495	C	1.0%
SR-76 (Kanner Hwy)	Salerno Rd	Indian St	Class I: 6-Ln Divided	3020	30,912	1,293	C	2.6%
SR-76 (Kanner Hwy)	Indian St	SR-714	Class I: 6-Ln Divided	3020	21,116	993	C	0.5%
SR-76 (Kanner Hwy)	SR-714	SR-5	Class I: 6-Ln Divided	3020	25,158	1,006	C	0.5%
SR-A1A (Ocean Blvd)	SR-714	St Lucie Blvd	Class II: 4-Ln Divided	1630	19,437	1,081	D	0.6%
SR-A1A (Ocean Blvd)	St Lucie Blvd	Sewalls Point Rd	Class I: 4-Ln Divided	2000	23,060	1,127	C	1.0%
SR-A1A (Ocean Blvd)	Sewalls Point Rd	Macarthur Blvd	Class I: 2-Ln Divided	925	13,597	845	C	0.5%
SR-A1A (Ocean Blvd)	MacArthur Blvd	SR-732	2-Ln Uninter /Undivided Flow	1190	8,532	407	A/B	3.1%
SR-A1A (Ocean Blvd)	SR-732	St Lucie County	2-Ln Uninter /Undivided Flow	1190	14,752	870	D	1.8%
St Lucie Blvd	CR-A1A	Indian St	2-Ln Undivided Non-State	675	3,305	172	C	0.5%
St Lucie Blvd	Indian St	SR-A1A	2-Ln Undivided Non-State	675	7,524	429	D	3.3%
Westmoreland Blvd	St Lucie County	SR-5	Class II: 2-Ln Divided	790	12,271	601	D	1.0%
Willoughby Blvd	Cove Rd	Salerno Rd	Class I: 2-Ln Undivided	880	4,332	214	C	8.0%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB) and Murphy Rd (PM/NB).

TABLE 7 Generalized **Peak Hour Directional** Volumes for Florida's Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Central

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
2	2,230	3,100	3,740	4,080
3	3,280	4,570	5,620	6,130
4	4,310	6,030	7,490	8,170
5	5,390	7,430	9,370	10,220
6	6,380	8,990	11,510	12,760

Urbanized

Lanes	B	C	D	E
2	2,270	3,100	3,890	4,230
3	3,410	4,650	5,780	6,340
4	4,550	6,200	7,680	8,460
5	5,690	7,760	9,520	10,570

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	580	890	1,200	1,610
2	Divided	1,800	2,600	3,280	3,730
3	Divided	2,700	3,900	4,920	5,600

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
https://www.fdot.gov/planning/systems/

SIGNIFICANCE

Significant Impact

A project significantly impacts a facility if its peak hour trips use more than five percent (5%) of a roadway's capacity (City of Stuart Code, 4.05.02 Traffic Impact Analysis). The project's traffic assignment and net external trips were utilized to determine the number of project trips on each road segment. Central Parkway is unclassified in the City's comprehensive plan. Therefore, Central Parkway service volumes are estimated based on FDOT's 2020 Q/LOS Manual. Central Parkway is a 4-lane divided roadway and is a Class II based on its 25 MPH posted speed limit. In addition, a 10 percent reduction in capacity was applied because this is a local roadway. The resultant estimated peak hour peak direction capacity is 1,530 based on the City's adopted LOS E standard (1,700 x 0.9).

In order to determine the project significance, the project's trips were divided by the roadway segment capacity. Based on the City's significance methodology, the proposed project does not significantly impact Central Parkway. The roadway capacities and the project significance are shown in Table 2.

Study Area

Based on Section 4.05.02 of the Code, the study area for transportation concurrency is all links and aggregated segments or parts thereof, on the major road network on which the project traffic has an impact of at least 5 percent and the first directly accessed roadway link (segment).

Table 2. Project Impacts 1-Way Peak Hour (Significance)

Roadway	From	To	Lanes	Generalized Service Capacity	Assign	Project Traffic	Significance	Significant Impact (Y/N)
Central Parkway	Kanner Hwy	Project	4	1,530	50%	26	1.70%	no
	Project	SE Ray's Way	4	1,530	65%	34	2.22%	no
	SE Ray's Way	US 1	4	1,530	40%	21	1.37%	no

As shown in Table 2, there are no roadways that are significantly impacted by the project.

EXHIBIT 1
Central Parkway Lofts
Trip Generation

Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour		
		Trips	Total	In	Out	Total	In	Out
Proposed Site Traffic								
Multifamily Housing(Mid-Rise)	196 DU	1,066	66	17	49	85	52	33
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)		**1,066**	**66**	**17**	**49**	**85**	**52**	**33**
NET CHANGE IN DRIVEWAY VOLUMES		**1,066**	**66**	**17**	**49**	**85**	**52**	**33**

Note: Trip generation was calculated using the following data:

Land Use	ITE Code	Unit	Daily Rate	Pass-by Rate	AM Peak Hour in/out	AM Peak Hour Rate	PM Peak Hour in/out	PM Peak Hour Equation
Multifamily Housing(Mid-Rise)	221	DU	T = 5.45 (X) + -1.75	0%	26/74	Ln(T) = 0.98 Ln(X) + -0.98	61/39	Ln(T) = 0.96 Ln(X) + -0.63

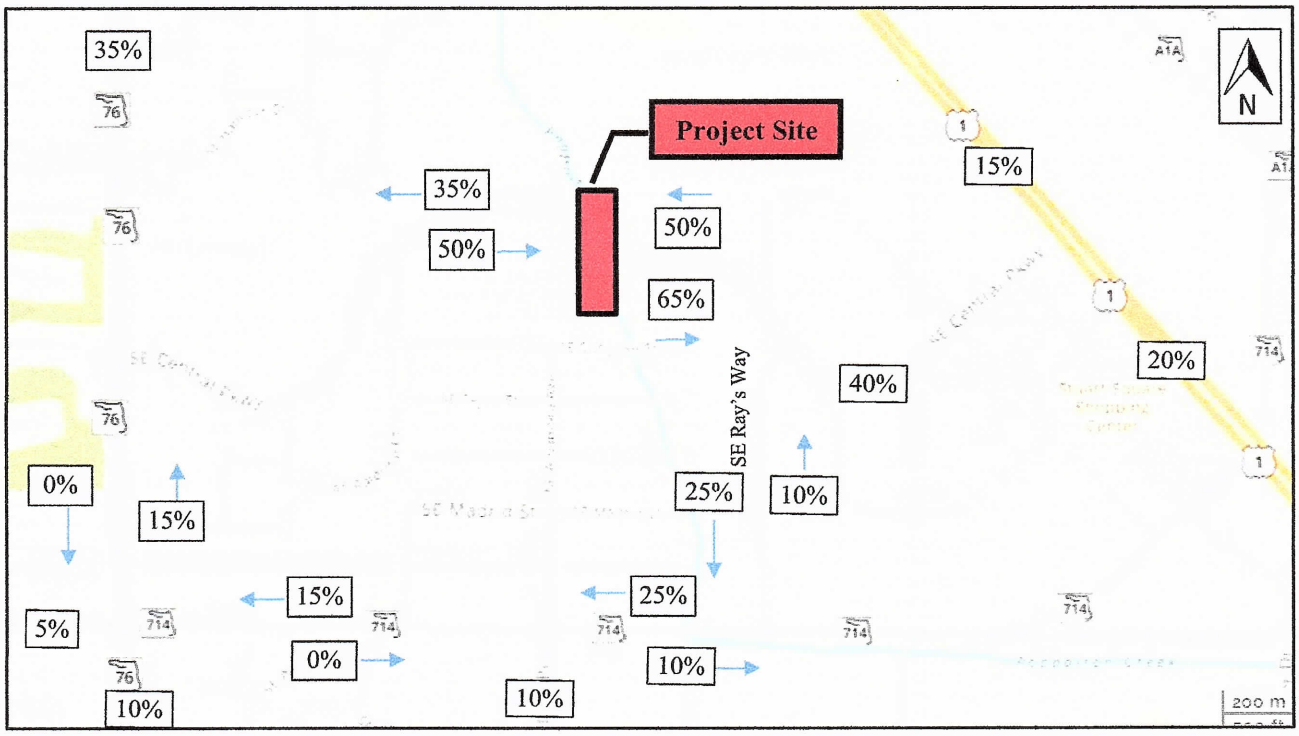
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TRAFFIC ASSIGNMENT

The traffic assignment was developed based upon existing and proposed developments, generators, destinations, and knowledge of the local area. These factors were applied using traffic engineering rationale similar to the gravity model.

- North – 50%
- South – 40%
- West – 5%
- East – 5%

Figure 2. Traffic Assignment



ATTACHMENT D

Driveway Volumes
And
Analysis

TURNING MOVEMENT VOLUME COUNTS

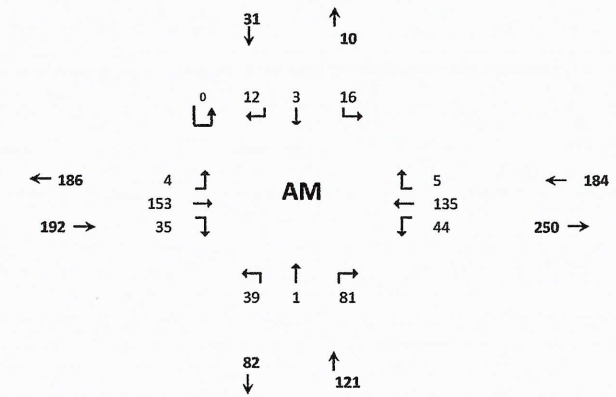
N/S STREET: Ray's Way **E/W STREET:** Central Parkway **CONTROL:** TWSC

FILENAME:

COUNT DATE: 2/23/2021 **DAY:** Tuesday **CITY:** Stuart **INTERSECTION:** Ray's Way and Central Parkway

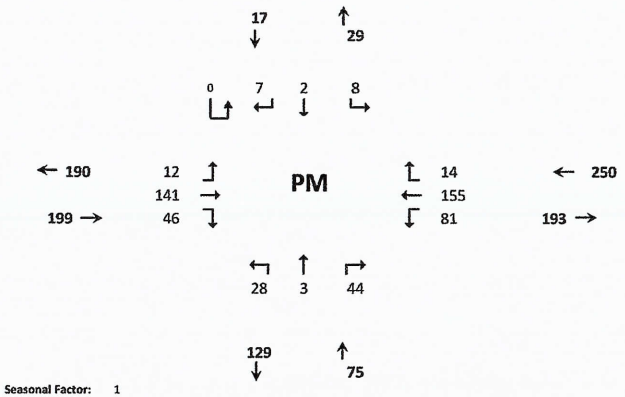
REPORT DATE: 1/5/2022 **ANALYSIS YEAR:** 2023

15 Min Period	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15														0	0
7:15-7:30														0	0
7:30-7:45														0	0
7:45-8:00														0	0
8:00-8:15														0	0
8:15-8:30														0	
8:30-8:45														0	
8:45-9:00														0	
AM PEAK HOUR IS FROM:			7:00AM TO 8:00AM												
Volumes	36	0	78	0	0	0	0	0	128	22	42	123	0	0	
Season Factor	36	0	78	0	0	0	0	0	128	22	42	123	0	429	
Growth	37	0	81	0	0	0	0	0	133	23	44	128	0	446	
In/Out		In			OUT	OUT	OUT	In					In		
Percentage	0%	10%	0%	0%	50%	10%	40%	40%	0%	0%	0%	0%	50%		
PROJECT	0	1	0	0	16	3	12	4	0	0	0	0	5	41	
In/Out	IN								OUT	OUT		IN			
Percentage															
LOFT	2								20	12		7			
Total	39	1	81	0	16	3	12	4	153	35	44	135	5	528	



Seasonal Factor: 1
Trips In 10
Trips Out 31
Growth Rate: 1.02
Years Grown: 2

15 Min Period lanes	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
4:00-4:15	1	0	11		0	0	0	0	23	8	26	25	0	94	395
4:15-4:30	3	0	12		0	0	0	0	27	6	19	39	0	106	429
4:30-4:45	3	0	4		0	0	0	0	26	9	15	24	0	81	424
4:45-5:00	8	0	14		0	0	0	0	30	3	25	34	0	114	428
5:00-5:15	8	0	12		0	0	0	0	40	18	19	31	0	128	390
5:15-5:30	6	0	13		0	0	0	0	34	13	12	23	0	101	
5:30-5:45	8	0	11		0	0	0	0	27	7	17	15	0	85	
5:45-6:00	0	0	6		0	0	0	0	20	9	16	25	0	76	
PM PEAK HOUR IS FROM:			4:15PM TO 5:15PM												
Volumes	22	0	42	0	0	0	0	0	123	36	78	128	0	429	
Season Factor	22	0	42	0	0	0	0	0	123	36	78	128	0	429	
Growth	23	0	44	0	0	0	0	0	128	37	81	133	0	446	
In/Out		IN			OUT	OUT	OUT	IN					IN		
Percentage	0%	10%	0%	0%	50%	10%	40%	40%	0%	0%	0%	0%	50%		
Project	0	3	0	0	8	2	7	12	0	0	0	0	14	46	
In/Out	IN								OUT	OUT		IN			
Percentage	10%								40%	25%		40%			
LOFT	5								13	8		21			
Total	28	3	44	0	8	2	7	12	141	46	81	155	14	541	



Seasonal Factor: 1
Growth Rate: 1.02
Trips In: 29
Trips Out: 17
Years Grown: 2

D-1

HCS 2010 Two-Way Stop-Control Report

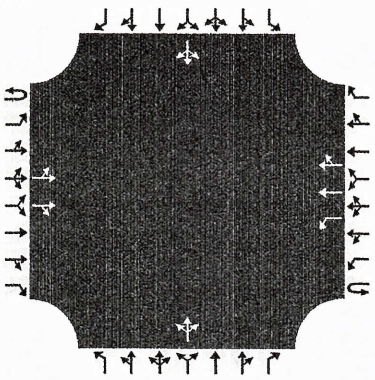
General Information

Analyst	Kyle Scherer
Agency/Co.	O'Rourke Engineering
Date Performed	1/3/2022
Analysis Year	2023
Time Analyzed	AM
Intersection Orientation	East-West
Project Description	Sailfish Cay

Site Information

Intersection	Ray's Way&Central Parkway
Jurisdiction	Martin County
East/West Street	Central Parkway
North/South Street	Ray's Way and Driveway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		LT		TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		4	153	35		44	135	5		39	1	81		16	3	12
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				48					131				33	
Capacity, c (veh/h)		1419				1358					785				666	
v/c Ratio		0.00				0.04					0.17				0.05	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.6				0.2	
Control Delay (s/veh)		7.5				7.7					10.5				10.7	
Level of Service, LOS		A				A					B				B	
Approach Delay (s/veh)		0.2				1.9				10.5				10.7		
Approach LOS										B				B		

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HCS 2010 Two-Way Stop-Control Report

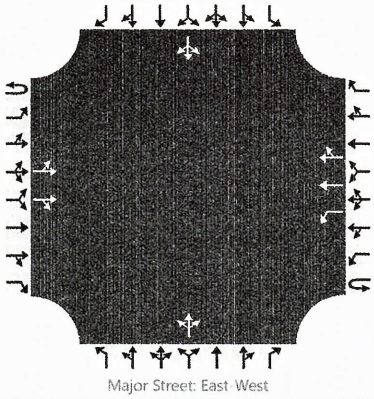
General Information

Analyst	Kyle Scherer
Agency/Co.	O'Rourke Engineering
Date Performed	1/3/2022
Analysis Year	2023
Time Analyzed	PM
Intersection Orientation	East-West
Project Description	Sailfish Cay

Site Information

Intersection	Ray's Way&Central Parkway
Jurisdiction	Martin County
East/West Street	Central Parkway
North/South Street	Ray's Way and Driveway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	1	0
Configuration		LT		TR		L	T	TR			LTR				LTR	
Volume, V (veh/h)		12	141	46		81	155	14		28	3	44		8	2	7
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13				88					81				19	
Capacity, c (veh/h)		1382				1359					694				595	
v/c Ratio		0.01				0.06					0.12				0.03	
95% Queue Length, Q_{95} (veh)		0.0				0.2					0.4				0.1	
Control Delay (s/veh)		7.6				7.8					10.9				11.2	
Level of Service, LOS		A				A					B				B	
Approach Delay (s/veh)		0.5				2.5				10.9				11.2		
Approach LOS										B				B		

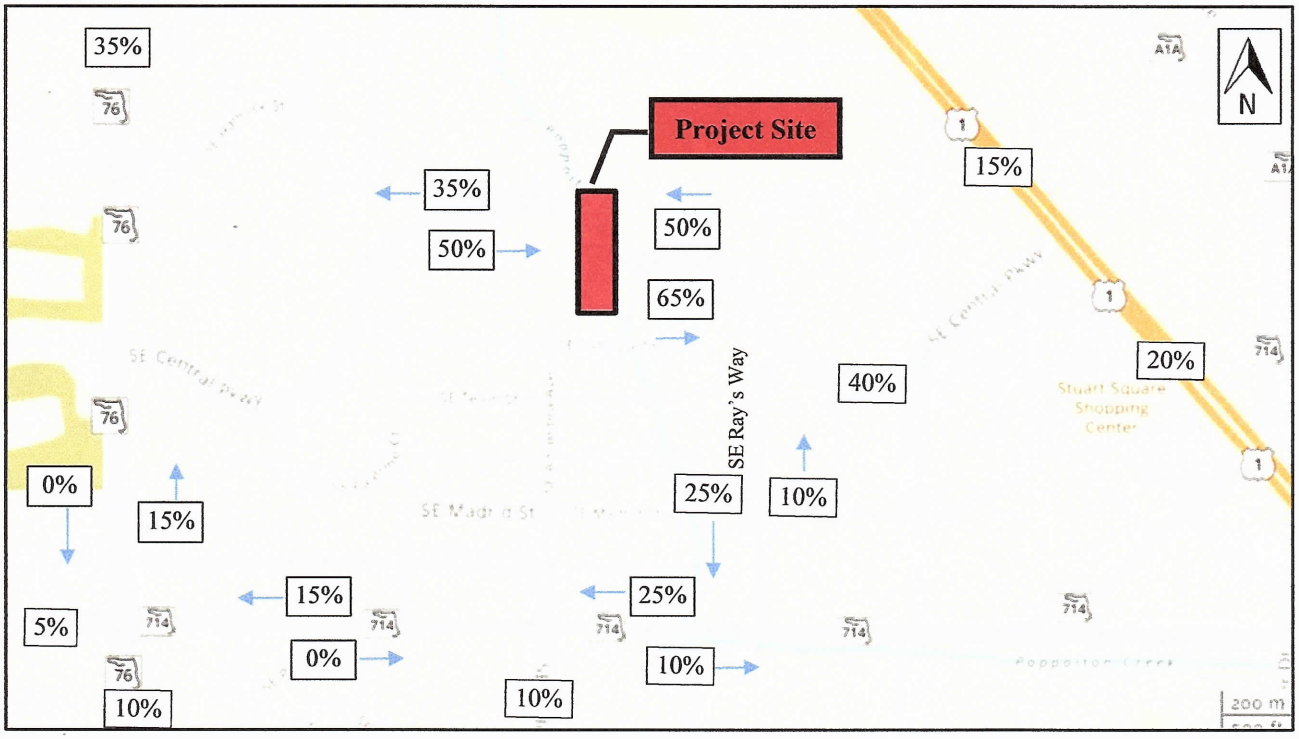
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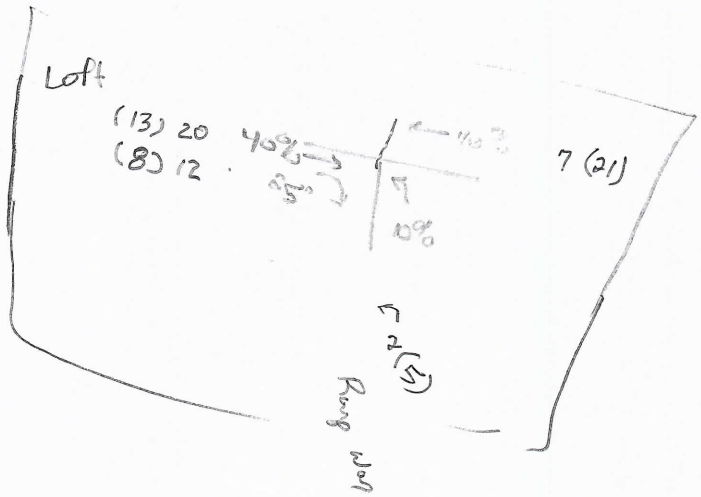
TRAFFIC ASSIGNMENT

The traffic assignment was developed based upon existing and proposed developments, generators, destinations, and knowledge of the local area. These factors were applied using traffic engineering rationale similar to the gravity model.

- North – 50%
- South – 40%
- West – 5%
- East – 5%

- **Figure 2. Traffic Assignment**





Central Parkway Lofts
PM PEAK HOUR TURNING MOVEMENTS
EXHIBIT 2
SE Ray's Way & Central Parkway

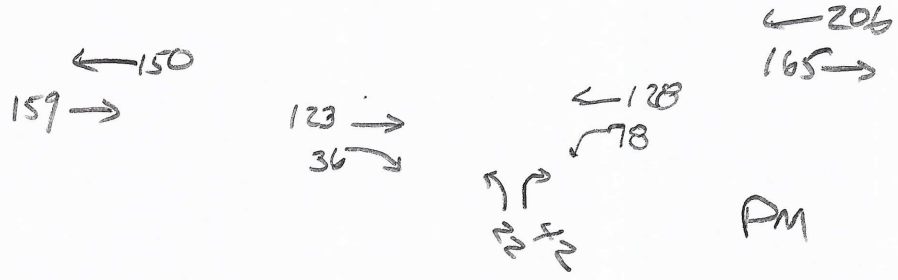
		ebu	ebl	ebt	ebr	wbu	wbl	wbt	wbr	nbu	nbl	nbt	nbr	sbu	sbl	sbt	sbr	totals
4:00 PM	4:15 PM	0	0	23	8	0	26	25	0	0	1	0	11	0	0	0	0	94
4:15 PM	4:30 PM	0	0	27	6	0	19	39	0	0	3	0	12	0	0	0	0	106
4:30 PM	4:45 PM	0	0	26	9	0	15	24	0	0	3	0	4	0	0	0	0	81
4:45 PM	5:00 PM	0	0	30	3	0	25	34	0	0	8	0	14	0	0	0	0	114
5:00 PM	5:15 PM	0	0	40	18	0	19	31	0	0	8	0	12	0	0	0	0	128
5:15 PM	5:30 PM	0	0	34	13	0	12	23	0	0	6	0	13	0	0	0	0	101
5:30 PM	5:45 PM	0	0	27	7	0	17	15	0	0	8	0	11	0	0	0	0	85
5:45 PM	6:00 PM	0	0	20	9	0	16	25	0	0	0	0	6	0	0	0	0	76
		0	0	227	73	0	149	216	0	0	37	0	3	0	0	0	0	785
Peak Hour Traffic Volume																		
4:15 PM	5:15 PM	0	0	123	36	0	78	128	0	0	22	0	42	0	0	0	0	429

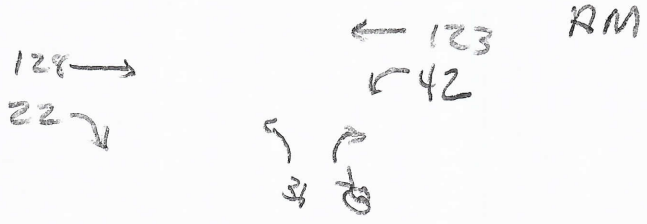
Count Taken: 2/23/2021
Buildout year: 2024
Growth Rate: 2.0%
Seasonal Factor: 1.00

	ebu	ebl	ebt	ebr	wbu	wbl	wbt	wbr	nbu	nbl	nbt	nbr	sbu	sbl	sbt	sbr
2/23/2021	0	0	123	36	0	78	128	0	0	22	0	42	0	0	0	0
PSCF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted Volumes	0	0	123	36	0	78	128	0	0	22	0	42	0	0	0	0
Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth	0	0	8	2	0	5	8	0	0	1	0	3	0	0	0	0
Pre-Development	0	0	131	38	0	83	136	0	0	23	0	45	0	0	0	0

PM Peak Hour West Central Parkway
WBT = WBT + NBL = 128 + 22 = 150
EBT = EBT + EBR = 123 + 36 =159

PM Peak Hour East Central Parkway
WBT = WBT + WBL = 128 + 78 = 206
EBT = EBT + NBR = 123 + 42 = 165





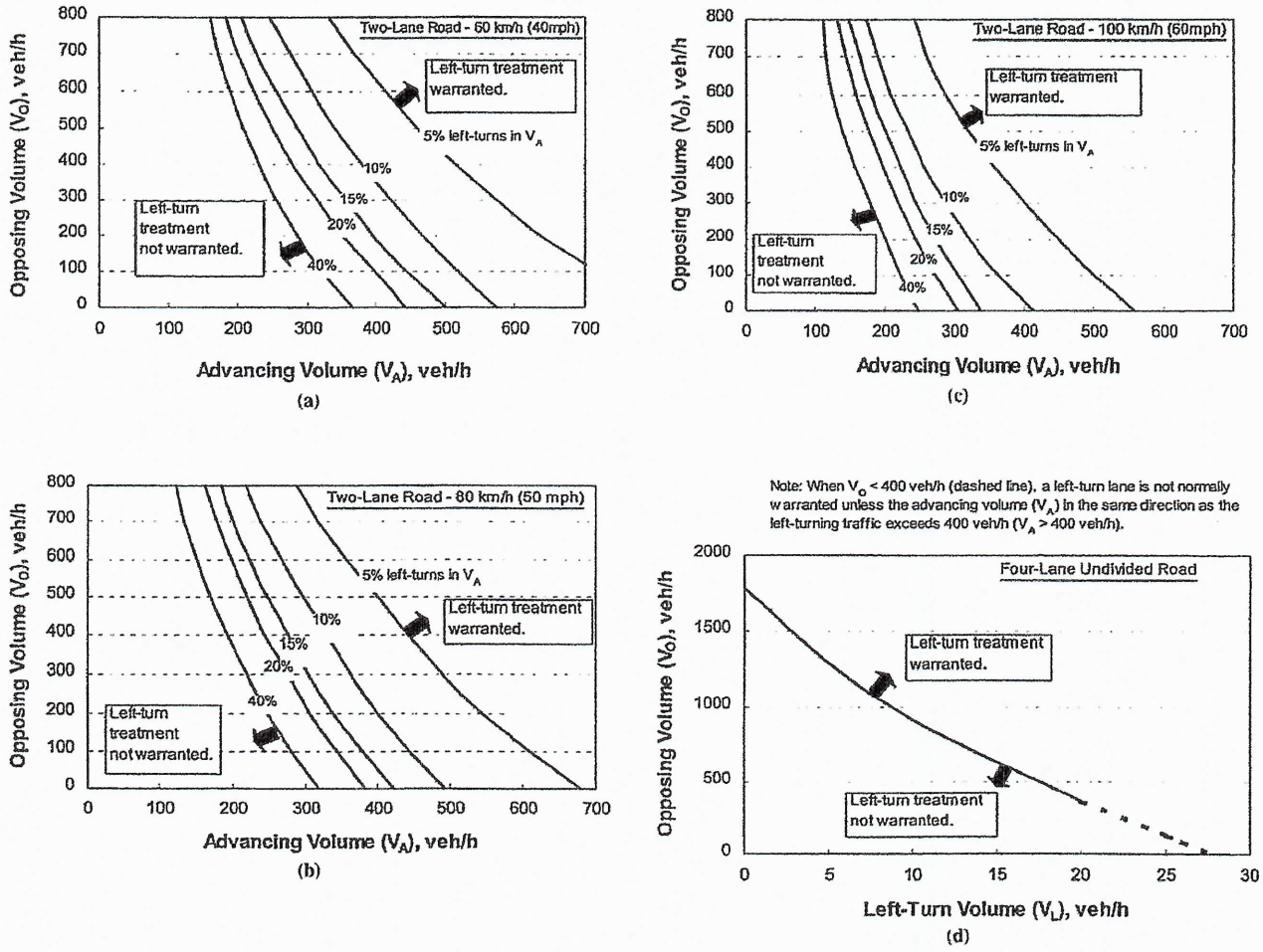


Figure 2-5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

Application. The guidance stated in the preceding section defines the conditions that may justify the provision of a left-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day and
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Use of Figure 2-5 requires determination of the opposing volume, the advancing volume, and the operating speed. The opposing volume should include only the right-turn and through movements on the approach across from (and heading in the opposite direction of) the subject major-road approach. The advancing volume should include the left-turn, right-turn, and through movements on the subject approach. The operating speed can be estimated as the 85th percentile speed. If the operating speed does not coincide with 60, 80, or 100 km/h (i.e., 40, 50, or 60 mph), then interpolation can be used or, as a more conservative approach, the operating speed can be rounded up to the nearest speed for which a figure is provided.

In application, Figure 2-5 is used once for each major-road approach to the intersection. The appropriate trend line is identified on the basis of the percentage of left-turns on the subject major-road approach. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn bay should be considered for the subject approach. If a bay is included at the intersection, it should be long enough to store left-turn vehicles 99.5 percent of the time (i.e., the bay should not overflow more than 0.5 percent of the time). Techniques for estimating this storage length are provided in the section, Increase the Length of the Turn Bay.

Add a Right-Turn Bay on the Major Road

Introduction. Provision of a right-turn bay on the major road to a two-way stop-controlled intersection can signifi-

When Not to Consider Exclusive Right-Turn Lanes

- Dense or built-out corridors with limited space
- Right-turn lane that would negatively impact pedestrians or bicyclists
- Vehicular movements from driveways or median openings that cross the right-turn lane resulting in multiple threat crashes
- Context classifications C2T, C4, C5, or C6

When Exclusive Right-Turn Lanes are Beneficial

There are instances when adding an exclusive right-turn lane for unsignalized driveways are beneficial to traffic operations and safety. ***Table 27*** provides some guidance for this situation based on the speed limit of the roadway and how many right turns occur per hour. Locations where the Auto and Truck Modal Emphasis is "High" may be appropriate for consideration of Exclusive Right Turn Lanes.

Table 27 – Recommended Guidelines for Exclusive Right-Turn Lanes to Unsignalized Driveway[10]

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	80 – 125[1]
Over 45 mph	35 – 55[2]
Note: A posted speed limit of 45 mph may be used with these thresholds if the operating speeds are known to be over 45 mph during the time of peak right turn demand.	
Note on traffic projections: Projecting turning volumes is, at best, a knowledgeable estimate. Keep this in mind especially if the projections of right turns are close to meeting the guidelines. In that case, consider requiring the turn lane.	
[1] The lower threshold of 80 right-turn vehicles per hour would be most used for higher volume (greater than 600 vehicles per hour, per lane in one direction on the major roadway) or two-lane roads where lateral movement is restricted. The 125 right-turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with a large entry radius (50 feet or greater).	
[2] The lower threshold of 35 right-turn vehicles per hour would be most appropriately used on higher volume two-lane roadways where lateral movement is restricted. The 55 right-turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with large entry radius (50 feet or greater).	

Source: NCHRP Report 420 (Impacts of Access Management Techniques)

These recommendations are primarily based on the research done in NCHRP Report 420, Impacts of Access Management Techniques, Chapter 4 – Unsignalized Access Spacing (Technique 1B), and Use of Speed Differential as a Measure to Evaluate the Need for Right-Turn Deceleration Lane at Unsignalized Intersections.

In the *NCHRP Report 420*, the observed high-speed roads, 30 to 40 right-turn vehicles per hour caused evasive maneuvers on 5 - 10 percent of the following through vehicles. For lower speed roadways, 80 to 110 right-turn vehicles caused 15 - 20 percent of the following through vehicles to make evasive maneuvers. The choice of acceptable percentages of through vehicles impacted is a decision based on reasonable expectations of the different roadways.

In this study, by modeling speed differentials, a better understanding of the impacts of through volume and driveway radius was discovered.

[10] May not be appropriate for signalized locations where signal phasing plays an important role in determining the need for right turn lanes.

October 21, 2021 **Revised: ~~02/17/202~~2 03/22/2022**

751 SE Central LLC
224 Chimney Corner Lane
Suite 3032
Jupiter, FL 33458
ATTN: RyanJohnston

VIA Email: liz@johnstongroupinc.com

Reference: **Environmental Assessment**
751 SE Central Parkway
Stuart, Florida
Parcel ID # 09-38-41-011-000-00001-1

Dear Mr. Fischer,

EDC, Inc. (EDC) has completed this Environmental Assessment (EA) for the above referenced property. The purpose of this evaluation was to conduct a review of the above listed parcels by means of site visit, review of available aerial photography, listed species review, review of soil resources, and review of environmental regulations pertaining to this parcel.

The following report details the findings of our on-site and desktop investigations of the properties as they pertain to the City of Stuart developmental review regulations.

Please contact the undersigned if you have any questions regarding this report.

Respectfully submitted,
EDC, Inc.

Madison Quinones, BS, FWC AGTA, AWB®
Wildlife Biologist | Project Scientist

ENGINEERS ◆ SURVEYORS ◆ ENVIRONMENTAL

ENVIRONMENTAL ASSESSMENT

Parcel IDs: 09-38-41-011-000-00001-1
751 SE Central Parkway
Stuart, Florida

Date: October 21, 2021 **Revised: 0~~2/17/2022~~ 03/22/2022**
Project # 21-353

Prepared For:
751 SE Central LLC
224 Chimney Corner Lane
Jupiter, FL 33458
ATTN: Ryan Johnston
liz@johnstongroupinc.com

Prepared By:
EDC, Inc.
10250 SW Village Parkway
Port St Lucie, Florida 34987
(772) 223-5200

The subject property evaluated as part of this Environmental Assessment consists of one tax parcel (Parcel ID # 09-38-41-011-000-00001-1) comprised of 4.88 acres. The property is classified by the Martin County Property Appraiser as vacant institutional land (land use code 7000). The subject property has a Future Land Use Designation of Institutional (INST) and is located in the Residential – Multi Family / Office (R3) zoning district. The subject property is located at 751 SE Central Parkway in Stuart, Florida. The subject property is further located within Section 09, Township 38 South, and Range 41 East.

This environmental assessment was completed as a precursor to permitting and review by governmental agencies as an applicable document for the supporting information associated with a building permit or land development application. EDC, Inc. staff visited the property on October 20, 2021 in order to ascertain the status and composition of any critical habitats, such as wetlands and native uplands that may be onsite.

VEGETATION:

It is the opinion of EDC that there is no native upland habitat located on site. The upland habitat consisted of the following FLUCCS (Florida Land Use & Cover Classification System) code; 740 – disturbed lands. According to Google Earth aerial images, the land was previously cleared and developed during the late 90s to early 2000s. The buildings appeared to be demolished in 2007-2008. Since then, the land has been maintained via mowing. It is important to note that there is native vegetation present, but the native vegetation does not have significant associations and is therefore not considered to be native habitat.

Common Name	Species Name
Cabbage Palm	*Sabal Palmetto*
Slash Pine	*Pinus elliottii var. densa*
Saw Palmetto	*Serenoa repens*
Broom Grass	*Andropogon spp.*
Bahia Grass**	*Paspalum notatum*
Brazilian Pepper**	*Schinus terebinthifolia*

***Nuisance Vegetation**
****Exotic/Invasive Vegetation**

Table 1: This table lists a representative sample of upland vegetative species observed during the site visit.

WETLAND DELINEATION:

According to aerial photographs and site visit, it appears that there are no State jurisdictional wetlands on site. Based on the State definition, a wetland consists of three components: 1) hydric soils, 2) wetland plants, and 3) hydrologic indicators. None of these components were found during the field reconnaissance on the property.

Please refer to the attached Florida Land Use and Cover Classification System (FLUCCS) map for the approximate location of the habitat(s) delineated onsite.

WILDLIFE EVALUATION:
EDC, Inc. conducted a pedestrian survey throughout the property to investigate for the presence of any plant or animal listed species. The potential for gopher tortoise habitat was observed on site. EDC's FWC Authorized Agent conducted a 100% gopher tortoise survey on February 21, 2022. No burrows were located on site. Please be aware that the survey expires after 90 days. If the survey expires prior to construction commencement, another 100% survey will be conducted prior to any land clearing activity.

Due to there being no native upland habitat, wetlands, and/or other surface waters located on site, historical and continued anthropogenic disturbance (clearing, development, mowing, etc.), and no connection to any adjoining significant native habitats, it is unlikely that any other listed animal species is located onsite.

SOIL COMPOSITION:
Based on a review of the US Department of Agriculture (USDA) Web Soil Survey, the site is composed of:

Waveland sand – This is a nearly level, poorly drained soil found in broad open areas of the flatwoods. The natural vegetation associated with this soil type is slash pine and an understory of saw palmetto, gallberry, fetterbush, running oak, and dwarf huckleberry. Grasses are pineland threeawn, bluestem and panicum. Typically, the surface layer is dark gray sand with a light gray and grayish brown subsurface layer. Under natural conditions, this soil is not suited to cultivate crops or for pasture because of ponding. However, if intensive management, soil improving measures and a good water control system are implemented, the soil is suitable for vegetable crops and pasture.

Immokalee fine sand – This is a poorly drained soil found in broad areas of flatwoods. Typically the surface layer is very dark gray fine sand about 6 inches thick. The subsurface layer extends to a depth of 35 inches and is fine sand. The seasonal high water table in Immokalee soil is at a depth of 6 to 8 inches from June through September. During the remainder of the year it is typically at a depth of 18 to 40 inches. Natural vegetation consists of slash pine and scattered oak with an understory of saw palmetto, gallberry, fetterbush, pineland threeawn, chalky bluestem, and Indian grass. This soil is poorly suited for crops and citrus. Water control measures are needed to overcome excessive wetness.

CITY OF STUART REGULATIONS:
The following lists the City of Stuart Land Development Code (LDC) that apply to the subject property. As part of the local approval process, the applicant will be required to comply with the below items.

Section 5.04.00: *No site clearing of any land within the city shall be permitted without city approval. For sites where less than 25% of the development site exists as native vegetative area, all native vegetative areas shall be preserved.*

No native upland habitat was located on site. It is important to note that there is native vegetation present, but the native vegetation does not have significant associations and is therefore not considered to be native habitat.

Section 5.05.00: *A tree location map shall be included with the application for site plan approval. Protected trees include slash pines with a DBH of ten inches, or any other tree referenced in chapter V of the LDC with a DBH of 4.5 inches (City of Stuart Tree List) or with a DBH of six inches for flowering trees (City of Stuart Flowering Tree List).*

Trees meeting the City of Stuart protected tree species criteria are located on site and a tree survey will need to be conducted to include with the site plan submittal.

SUMMARY:

The subject property evaluated as part of this Environmental Assessment consists of one tax parcel (Parcel ID # 09-38-41-011-000-00001-1) comprised of 4.88 acres. The property is classified by the Martin County Property Appraiser as vacant institutional land (land use code 7000). The subject property is located at 751 SE Central Parkway in Stuart, Florida.

It is the professional opinion of EDC that there is no native upland habitat or wetlands located on site. However, it is important to note that there is native vegetation present, but the native vegetation does not have significant associations and is therefore not considered to be native habitat. Accordingly, trees meeting the City of Stuart protected tree species criteria are located on site and a tree survey will need to be conducted to include with the site plan submittal. Further tree protection actions such as mitigation, may be required based off the survey.

Lastly, gopher tortoise habitat was observed on site and a 100% gopher tortoise survey was conducted by EDC's Florida Fish and Wildlife Conservation Commission (FWC) Authorized Agent and no burrows were located onsite. Due to there being no native upland habitat, wetlands, and/or other surface waters located on site, historical and continued anthropogenic disturbance (clearing, development, mowing, etc.), and no connection to any adjoining significant native habitats, it is unlikely that any other listed animal species is located onsite.

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Environmental Assessment

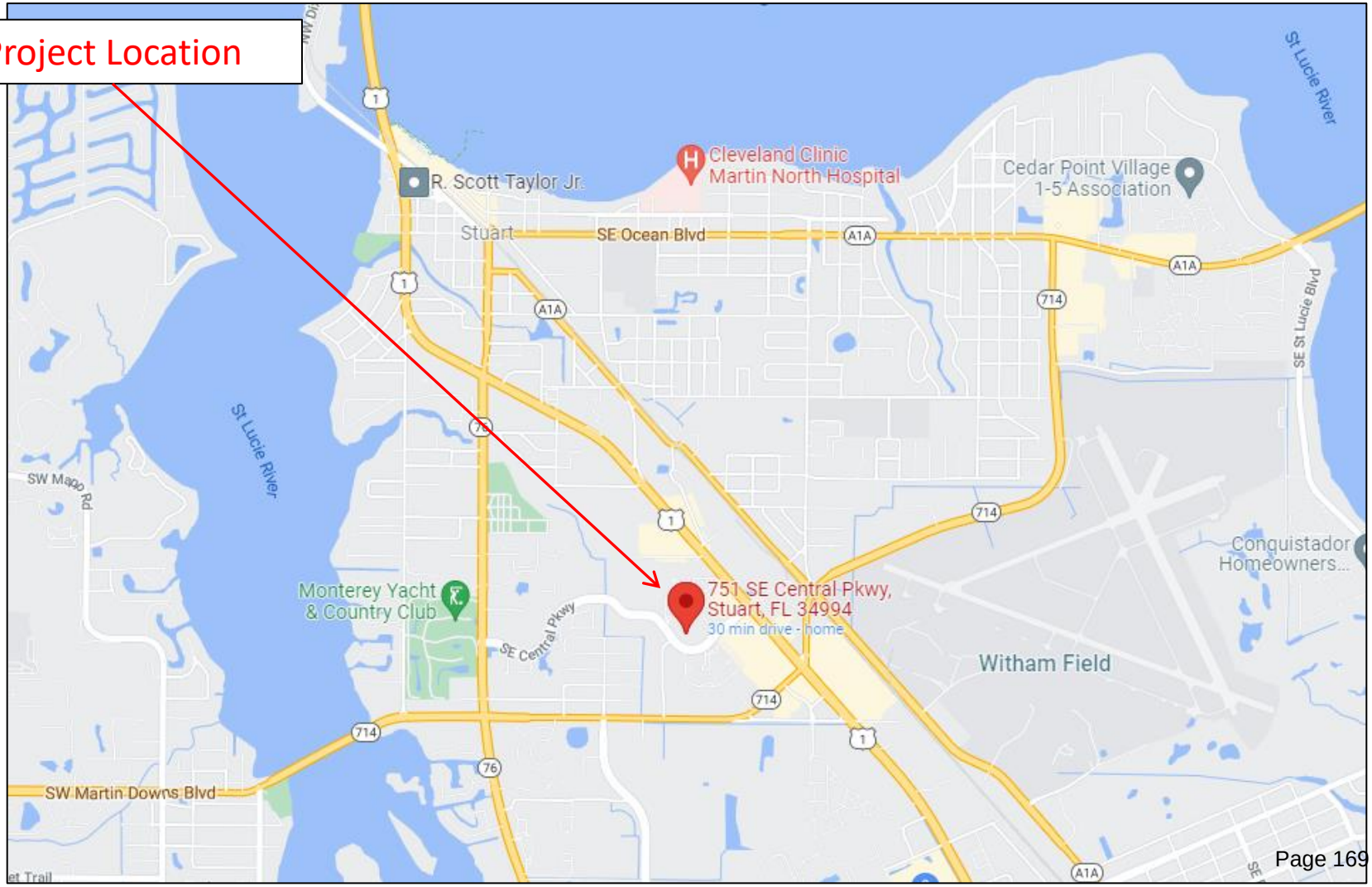
751 SE Central Parkway
Stuart, Florida

Location Map

Project: 21-353	Johnston Group Inc.	10/21/2021

N

Project Location



ENGINEERS SURVEYORS ENVIRONMENTAL

Environmental Assessment

751 SE Central Parkway
Stuart, Florida

Property Appraiser Map

Project: 21-353	Johnston Group Inc.	10/21/2021

N



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Environmental Assessment

751 SE Central Parkway
Stuart, Florida

Soil Map

Project: 21-353	Johnston Group Inc.	10/21/2021

N

Martin County, Florida (FL085)

Martin County, Florida (FL085)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Waveland and Immokalee fine sands	4.8	100.0%
Totals for Area of Interest		**4.8**	**100.0%**



ENGINEERS SURVEYORS ENVIRONMENTAL

Environmental Assessment

751 SE Central Parkway
Stuart, Florida

Florida Land Use, Cover and Forms Classification System (FLUCCS) Map

Project: 21-353	Johnston Group Inc.	10/21/2021

N

FLUCCS Codes	
740	Disturbed Lands

***This map demonstrates an approximation of habitat boundaries on site.**



ENGINEERS SURVEYORS ENVIRONMENTAL

Environmental Assessment

751 SE Central Parkway
Stuart, Florida

1995 Google Earth Aerial

Project: 21-353	Johnston Group Inc.	10/21/2021

N



ENGINEERS SURVEYORS ENVIRONMENTAL

Environmental Assessment

751 SE Central Parkway
Stuart, Florida

2003 Google Earth Aerial

Project: 21-353	Johnston Group Inc.	10/21/2021

N



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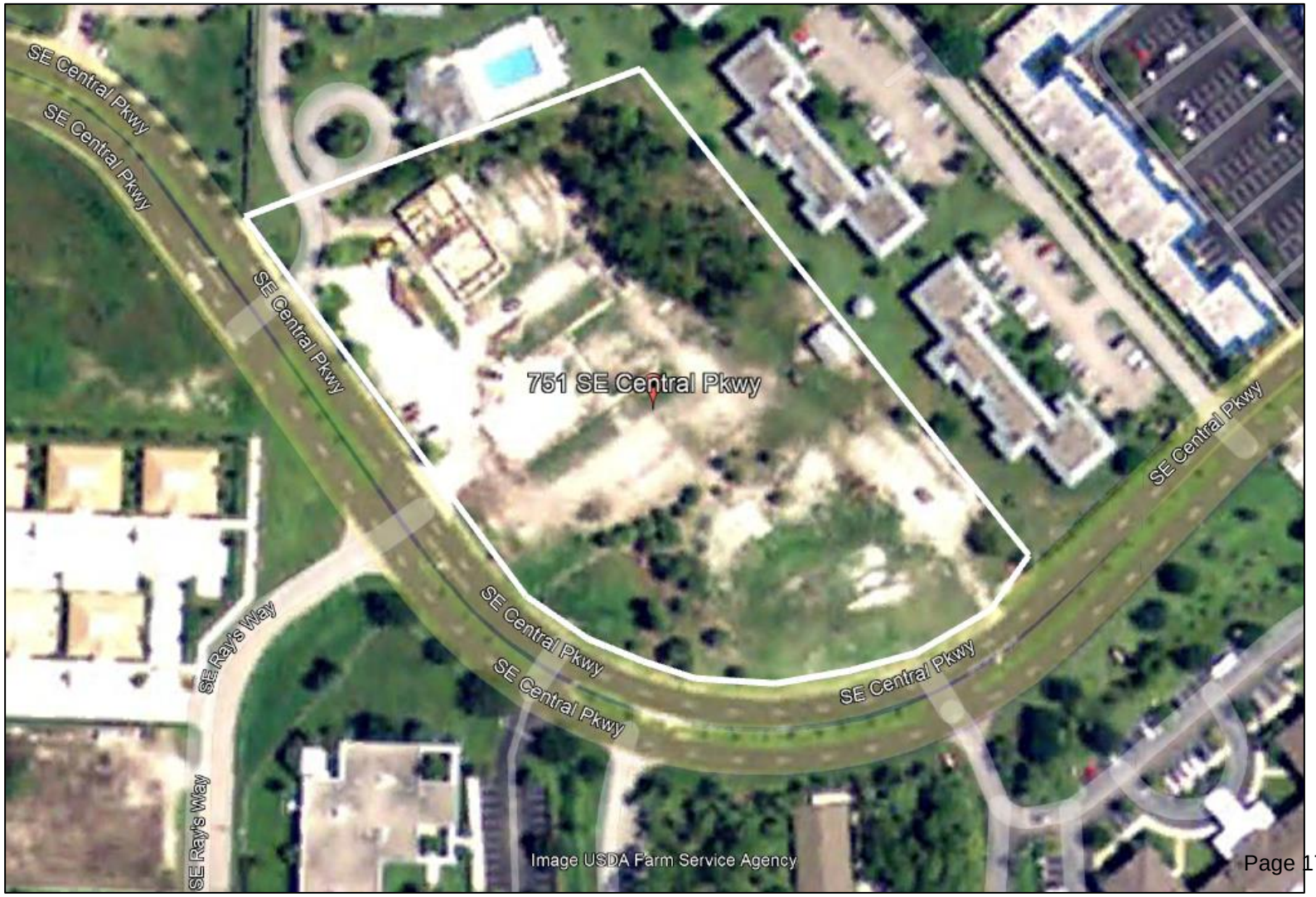
Environmental Assessment

751 SE Central Parkway
Stuart, Florida

2007 Google Earth Aerial

Project: 21-353	Johnston Group Inc.	10/21/2021

N



ENGINEERS SURVEYORS ENVIRONMENTAL

Environmental Assessment

751 SE Central Parkway
Stuart, Florida

2009 Google Earth Aerial

Project: 21-353	Johnston Group Inc.	10/21/2021

N



ENGINEERS & SURVEYORS
ENVIRONMENTAL

Drainage Calculations
& Surface Water Management Report

For

Sailfish Cay
751 SE Central Parkway

Prepared By: Mark Landsman

Engineering Design & Construction, Inc.
10250 SW Village Parkway, Suite 201
Port St. Lucie, FL 34987
Board of Professional Engineers Certificate of Authorization Number 9935

March 2022

R J KENNEDY LICENSE No. 56218 STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER

MAR 2 5 2022

R.J. Kennedy, P.E. #56218 Date
10250 SW Village Parkway, Suite 201
Port St. Lucie, FL 34987 (772) 462-2455

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Table 8-Minimum Finished Floor Elevation 11

1.0 Executive Summary

The Sailfish Cay project proposes to develop a portion of a previously permitted Towne Park Professional Center and Condominiums. The Town Park Condominiums are located adjacent to and north of the Town Park Professional Center basin (4.88 acres – Sailfish Cay basin). Sailfish Cay proposes a multi-family residential community consisting of 60 townhomes with associated site improvements such as parking, a clubhouse with pool and a stormwater management system. The stormwater management system will consist of a 0.5-acre lake that will treat stormwater generated from the proposed development as well as accepting off-site flows from the Towne Park Condominiums to the north. The ultimate outfall for the project will remain the same in the post development condition, which discharges stormwater to the south to the Towne Park South (McCreary Offices) basin. Discharges eventually reach the Poppleton Creek and ultimately the St Lucie River. The project proposes low-impact development as part of the stormwater management system to limit run-off, retain additional stormwater, and reduce overall nitrogen and phosphorus discharge loads. The associated appendices include supporting documentation for assumptions made in this report.

2.0 History and Existing Storm Water Management System

In July 1990, the District approved of an ERP (Permit No. 43-00600-S, Application 900626-8) for a project known as McCreary Offices, which limits the discharge rate for the Towne Park North to 4.0 cfs.

In February 1992, the District approval of an ERP (Permit No. 43-00245-S-03, Application 920113-6) which identifies the control elevation, and minimum elevations for the proposed Sailfish Cay project.

The project site is generally flat with grades ranging from 11.3 to 15.1 NAVD. The center of the site has a slight mound that helps to sheet flows excess stormwater from the north to the south, eventually discharging to an existing culvert that conveys stormwater under

SE Central Parkway towards the south into the McCreary Offices basin. Stormwater is then conveyed through the McCreary Offices and underneath SE Rays Way into a ditch that runs north and south towards the Poppleton Creek. The ultimate outfall for the project is the Poppleton Creek and eventually the St Lucie River. Please see Appendix A for a map that depicts the stormwater flow path.

3.0 Drainage Calculation Summary

3.1 Project Description

The project is bound by the existing Towne Park Condominiums to the north and the east with a zoning designation of R-3 Multifamily residential. To the south of the project is the SE Central Parkway and eventually the McCreary offices and Solaris Healthcare Facility. The McCreary offices have a zoning designation of R-3 Multifamily residential, while the Solaris Healthcare Facility has a zoning designation of RPUD (Residential PUD). To the west of the project is the SE Central Parkway and existing developments with a zoning designation of CPUD (Commercial PUD).

Table 1-Site Details

Parcel ID	Size (acres)	Proposed FLU	Jurisdiction	Zone
09-38-41-011-00001-1	4.88	Multifamily	City of Stuart	RPUD

3.2 Datum

All elevations included on the project construction plans are in reference to the North American Vertical Datum 1988. The vertical datum conversion has been determined to be approximately 1.50 feet in the project area. This is used to convert NGVD to NAVD, in other words NGVD elevation minus 1.50 feet = NAVD elevation.

3.3 Proposed Stormwater Management System

The proposed stormwater management system for the site consists of a series of inlets connected via underground pipes and exfiltration trench system that convey stormwater to the on-site wet detention system (lake). The project accepts off site flows from the Towne Park Condominiums as stated in the drainage report for the Towne Park Professional Center. A copy of the drainage report is attached in Appendix E. A 10' drainage easement for the benefit of the Towne Park Condominiums runs through the center of the Sailfish Cay property allowing stormwater to discharge from the Towne Park Condominiums to the McCreary offices to the south. The applicant proposes to modify this easement in order to develop the site. Discharges from the Town Park Condominiums will be routed through the Sailfish Cay stormwater management system. Water quality will not be provided however, attenuation will be provided for this discharge via a control structure located in the proposed lake. A 590 linear foot exfiltration trench is proposed to assist in water quality treatment prior to discharging to the on-site lake for further treatment. The volume from the exfiltration trench is not counted towards stormwater capacity volume.

3.4 Low-Impact Development (LID)

The Sailfish Cay project proposes low-impact development (LID) as part of the stormwater management system. Bio-swales are proposed that are capable of providing up to 0.04 ac-ft of treatment volume before overflowing excess stormwater into the proposed lake. The site will also utilize 0.19 acres of pervious pavers to reduce the amount of run-off into the stormwater management system. The pervious pavers will count 50% towards pervious and 50% towards impervious. In addition, the water quality weir in the lake is set at an elevation of 11.00 NAVD which is greater than the required elevation of 9.74 NAVD. The required detention volume remaining in the lake is 0.18 ac-ft (at stage 9.74 NAVD), however the applicant is providing 1.32 ac-ft of detention volume (at stage 11.00 NAVD). This additional 1.32 ac-ft of detention volume equates to an excess treatment volume of over 730%.

3.5 Land Use Tables

The following Tables 2 and 3 outline the pre-development land use for the site versus the post development land use. An existing access easement on the southwest corner of the subject property consists of the only impervious area in the pre-development condition.

Table 2-Pre-Development Land Use

Land Use	Area (ac)	Percentage of Site (%)
Impervious (Pavement Concrete)	0.042	0.8%
Building	0.00	0.00%
Pervious (not including wetlands)	4.84	99.2%
Basin Area	**4.88**	**100**

Table 3-Post Development Land Use

Land Use	Impervious Area (ac)	Pervious Area (ac)	Percentage of Site (%)
Building	1.63	0.00	33.40%
Pervious Pavers	0.095	0.095	3.89%
Pavement and Concrete	1.156	0.00	23.69%
Lake	0.50	0.128	12.86%
Bio-Swale	0.00	0.12	2.46%
Pervious	0.00	1.16	23.77%
Site Area:	**3.381**	**1.503**	**100**

3.6 Control Elevation

The control elevation for the project is at 8.50 NAVD. A geotechnical report was completed by Andersen Andre Consulting Engineers, Inc. on July 19, 2020 (included in Appendix D), which provides water table elevations and a hydraulic conductivity used in the exfiltration trench design. The borings in the report reveal that the water table was encountered approximately 7-feet below the surface, which results in a water table of approximately 6.00 NAVD. The borings were completed at the start of the wet season, therefore, it is anticipated that the wet season high water table would be approximately 2.5’ higher than the water table encountered in the borings.

A review of an adjacent project known as Seaside, which is to the west of the Sailfish Cay property revealed a control elevation of 6.0 NAVD. It is assumed that the control elevation for this site will be lower than Sailfish Cay due to the proximity to the Poppleton Creek. According to the Towne Park Professional Center Drainage Report, the control elevation of the Towne Park Condos is at 8.5 NAVD. Flows from this site are routed into the Sailfish Cay site via sheet flow. A control elevation of 8.5 NAVD for the Towne Park Condos confirms the control elevation for the site should also be at 8.5 NAVD.

3.7 Tailwater

The tailwater condition for the site was derived from the assumed elevation of the drainage ditch that accepts discharges from the Towne Park North properties (Towne Park Condominiums and proposed Sailfish Cay), which are located on the north side of SE Central Parkway. As a conservative approach, the design storm tailwater condition was used for all simulations, except the 100-year 3-day storm event, which was modeled with zero discharge.

Table 4-Tailwater Condition

Time (hr)	Stage (ft) NAVD
0	10.00
55	11.25
70	12.25
360	10.00

3.8 Net Improvement (BMPTrains)

Due to the site changing land use from undeveloped to multi-family residential, net improvement calculations were performed to determine the required retention volume to reduce total nitrogen and phosphorus discharge loads. The BMP treatment train is set up as 3 catchments in series. Nitrogen and phosphorus removal efficiency is achieved by a combination of 590 LF of exfiltration trench, a lake that provides 16.556 ac-ft of permanent pool volume and a retention pond with a raised bleeder. The required

retention to meet efficiency for the entire treatment train is 2.44 inches. The exfiltration trench provides 1.13 inches of treatment while the retention pond provides 1.31 inches. Please see Appendix B for the details on the BMPTrains calculations.

3.9 Water Quality Treatment

The project proposes to treat run-off volume from the 4.88-acre site. Treatment for the discharge from the Towne Park Condominium is not provided in the proposed stormwater management system for the project. The treatment volume provided is 150% of the treatment volume due to the ultimate outfall being an Outstanding Florida Waterbody (OFW – St Lucie River). Due to the change in use for the site, net improvement retention volume controls.

Table 5-Water Quality Treatment Volume

	1-inch Over the Project Area	**2.5-inches Times Percent Impervious**	**Net Improvement**
Water Quality Treatment Volume (ac-ft)	0.41	0.61	**0.99**

In order to achieve the required water quality treatment for the project, an exfiltration trench in combination with a lake is proposed. The exfiltration trench is capable of treating 0.46 ac-ft of volume, while the remaining 0.44 ac-ft is provided in the lake with a raised bleeder at an elevation of 10.00 NAVD. The exfiltration trench is directly connected to a control structure that has a weir set at 10.40 NAVD which provides 0.46 ac-ft of retention volume. Discharges from this control structure are then routed to the on-site lake for continuation of stormwater treatment. A control structure within the lake has a proposed weir elevation of 11.00 NAVD which provides 1.32 ac-ft of detention treatment volume between the bleeder and the weir. The total treatment volume for the stormwater management system is 1.80 ac-ft.

3.10 Discharge Rates

The discharge rate for the project is controlled by the existing ERP which states that the maximum rate is 4.0 cfs. The proposed Sailfish Cay site accepts off site flows from the adjacent Towne Park Condominiums during the design storm event. The stormwater management system for Sailfish Cay does not propose to treat the accepting discharge from Towne Park Condominiums, however, attenuation will be provided. According to City of Stuart Code a pre vs post discharge rate analysis was completed on the 3-year/1-day, 5-year/1-day, 10-year/3-day and 25-year/3-day storm events. The following Table 6 provides the ICPR results of the discharge rates for the project. Please see Appendix C for further information on the ICPR inputs and results.

Table 6-Discharge Rates

Storm Event	Pre-Development	Post Development
3-year/1-day	2.69 cfs	1.22 cfs
5-year/1-day	3.28 cfs	1.38 cfs
10-year/3-day	5.41 cfs	1.98 cfs
25-year/3-day	6.05 cfs	3.62 cfs

3.11 Minimum Road and Parking

The minimum road and parking elevation for the site is dictated by the maximum elevation of the 10-year 1-day storm event result from the ICPR simulation. The following Table 7 outlines the minimum road and parking for the Sailfish Cay project.

Table 7-Minimum Road Elevation

ICPR Result	Proposed Minimum Road
12.45 NAVD	12.50 NAVD

3.12 Minimum Finished Floor

The minimum finished floor elevation for the site is dictated by the maximum elevation of the 100-year 3-day storm event stage (zero discharge) from the ICPR simulation. The adjacent Towne Park Condominiums have finished floor elevations that range from 13.65 NAVD to 13.97 NAVD. As such, the proposed minimum finished floor for the Sailfish Cay project will be consistent with existing adjacent finished floor elevations. The following Table 8 outlines the ICPR result for the 100-year 3-day storm event and the proposed minimum finished floor for the project. To prevent flooding upstream in the Towne Park North Condos, a flap gate is proposed in the drainage structure that accepts flows from the Towne Park North Condos.

Table 8-Minimum Finished Floor Elevation

Basin	ICPR Result	Minimum FFE
Sailfish Cay	13.75 NAVD	14.00 NAVD
Towne Park North Condos	13.55 NAVD	13.65 NAVD*

*13.65 NAVD represents the lowest existing FFE for the Towne Park North Condos

3.13 Perimeter Berm

The perimeter berm for the site is controlled by the maximum stage of the 25-year/3-day design storm event. The maximum stage of the design storm is 12.86 NAVD, therefore the perimeter berm will be seat at a stage of 12.90 NAVD.

3.14 Control Structure

The site is proposed with two control structures to limit discharge and attenuate stormwater from the site. The exfiltration system has a proposed control structure for retention to meet water quality standards for net improvement. The proposed control structure for the exfiltration system consists of a modified FDOT C box with an internal weir set at an invert elevation of 10.40 NAVD. Discharges from this control structure are conveyed to the on-site lake for continuing treatment and attenuation. The control

structure in the lake is a modified FDOT C box with a raised bleeder and weir. The raised bleeder is set at an invert elevation of 10.00 NAVD to achieve the appropriate nitrogen and phosphorus loading reductions. The proposed weir is a 1-foot wide by 3-inch in height slot with an invert elevation of 11.00 NAVD. The weir is sized to limit the discharge from the project to under 4.0 cfs. An overflow weir (box rim) is proposed to provide relief to the stormwater management system during a major rain event. The rim of the box has an elevation of 12.70 NAVD.

3.15 City of Stuart 72-Hour Treatment Volume

According to City of Stuart code, a stormwater management system must recover the required treatment volume within 72 hours. The required water quality treatment volume for the project is 0.44 ac-ft (19,167 cubic feet). In order to demonstrate that the system is capable of recovering the required treatment volume in 72 hours, a retention pond recovery model was built with the PONDS software.

Based on the USDA web soil maps, an estimated vertical hydraulic conductivity (k_v) and horizontal hydraulic conductivity (k_h) value can be used in the PONDS model. The horizontal hydraulic conductivity (k_h) is estimated to be 35.92 ft/day and the vertical hydraulic conductivity (k_v) is estimated to be 14.54 ft/day. Since 40% of the proposed lake will have a bulkhead, a weighted horizontal hydraulic conductivity is used. Since the depth of the bulkhead is unknown a conservative approach assumes that the bulkhead will be installed at a depth that is equal to the base of the aquifer. As such, h_2 is equal to zero. The below equation calculates the horizontal hydraulic conductivity used in the PONDS model.

$$k_{avg} = \left(\frac{L_{unwalled}}{L_{Total}}\ x\ k_h\right) + \left(\frac{L_{walled}}{L_{Total}}\ x\ \frac{h_2}{h_1}\ x\ k_h\right)$$

$$k_{avg} = \left(\frac{362}{604}\ x\ 35.92\right) + \left(\frac{242}{604}\ x\ \frac{0}{11.5}\ x\ 35.92\right) = 21.53\ \frac{ft}{day}$$

Since a pond is proposed, the vertical hydraulic conductivity is only applied to the lake banks. The lake banks have a maximum area for unsaturated infiltration of 7,789 sq ft. The results of the demonstration conclude that the proposed stormwater management system is capable of recovering the required treatment volume within 72 hours. At the 72-hour mark, the stage in the pond is at 9.29 NAVD; the water quality weir is set at an elevation of 11.00 NAVD. The volume of water that is available to be treated between elevations 9.29 NAVD and 11.00 NAVD is 1.03 ac-ft. This exceeds the required water quality treatment volume of 0.66 ac-ft using the Outstanding Florida Waterbody (OFW) criteria, which is 150% of the standard volume.

4.0 Conclusion

The Sailfish Cay project consists of a proposed multi-family residential community with associated site improvements. The site has an existing ERP, which once included the expansion of the Towne Park Condominiums, however, construction of the expansion into the Sailfish Cay project area never occurred. The existing ERP and drainage report help to identify the stormwater discharges that are accpeted by the proposed stormwater management system for the Sailfish Cay project. The proposed stormwater management system is capable of accepting off site flows and treating on-site run-off according the local and SFWMD standards. Please see the associated appendices for supporting documentation.

Appendix A: Basin Maps and Basin Information

Zoning Map
Stuart, Florida

Development Department
November 1, 2017

Legend

Zoning Districts

- Annexed - Martin County Zoning District (City Zoning TBD)

Commercial Districts
- B-1 - Business Limited
- B-2 - Business General
- B-3 - Business Restricted
- B-4 - Limited Business/Manufacturing

East Stuart Districts
- BMU - Business and Mixed Use
- GRO - General Residential and Office
- SFD - Single-Family and Duplex

Residential Districts
- R-1 Single Family - General
- R-1A Single Family - Estate
- R-2 Residential - Duplex
- R-3 Residential - Multi-Family/Duplex

Planned Unit Development (PUD) Districts
- RPUD - Residential PUD
- CPUD - Commercial PUD
- IPUD - Industrial PUD
- MXPUD - Mixed Use PUD
- PSPUD - Public Service PUD

Urban Districts
- UC - Urban Center
- UG - Urban General
- UH - Urban Highway
- UN - Urban Neighborhood
- UW - Urban Waterway

Other Districts
- IND - Industrial
- PUBLIC
- HOSPITAL
- Municipal Boundary
- Unincorporated Martin County
- S.E. Ocean Blvd Overlay Zone

Jensen Beach
Ocean Breeze Park
Community of Rio
North Fork St Lucie River
St Lucie River Basin
Sewall's Point
Palm City
WITHAM FIELD
Poppolton Creek

N
W E
S

0 0.15 0.3 0.6 0.9 1.2 1.5 Miles

Disclaimer :

This Geographic Information System product, from the City of Stuart, is provided to the public as a courtesy and public record. It should not be relied upon or used as a final determination or designation of images, boundaries, zoning or other land use or development restrictions, designations or allowable uses. The City does not warrant, guarentee or make any representations regarding the use or the results of the use of the information provided to you by the City in terms of its' correctness, accuracy, reliablity, timeliness, or otherwise. If you need current or complete zoning, development or land use information or designations, you should consult with a professional and separately request an official zoning verification from the City.

BOUNDARY & TOPOGRAPHIC SURVEY

FOR: CYPRESS HOLDINGS, LLC.

SCHEDULE B-II ITEMS

TITLE COMMITMENT PREPARED BY
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
COMMITMENT # 1094514 A1
COMMITMENT DATE: MAY 23, 2021, AT 11:00 PM

4. ANY LIEN PROVIDED BY COUNTY ORDINANCE OR BY CHAPTER 159, F.S., IN FAVOR OF ANY CITY, TOWN, VILLAGE OR PORT AUTHORITY, FOR UNPAID SERVICE CHARGES FOR SERVICES BY ANY WATER SYSTEMS, SEWER SYSTEMS OR GAS SYSTEMS SERVING THE LAND DESCRIBED HEREIN; AND ANY LIEN FOR WASTE FEES IN FAVOR OF ANY COUNTY OR MUNICIPALITY.
AFFECTS SUBJECT PROPERTY; NOT A SURVEY MATTER.

5. RIGHTS OF THE LESSEES UNDER UNRECORDED LEASES.
AFFECTS SUBJECT PROPERTY; NOT A SURVEY MATTER.

6. ALL MATTERS CONTAINED ON THE PLAT OF TOWNE PARK, AS RECORDED IN PLAT BOOK 11, PAGE 85, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **SHOWN ON SURVEY.**

10. EASEMENT FOR PERRY CABLE TV CORP. RECORDED IN O.R. BOOK 548, PAGE 987, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **AFFECTS SUBJECT PROPERTY; BLANKET IN NATURE.**

11. SANITARY SEWER LIFT STATION EASEMENT RECORDED IN O.R. BOOK 675, PAGE 299, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **SHOWN ON SURVEY.**

12. SEWER, WATER AND LIFT STATION EASEMENT AGREEMENT RECORDED IN O.R. BOOK 706, PAGE 850, AS AFFECTED BY INSTRUMENT RECORDED IN O.R. BOOK 2003, PAGE 1824, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
EASEMENT #1 SHOWN ON SURVEY, EASEMENT #3 TERMINATED/ABANDONED BY O.R. BOOK 2003, PAGE 1826.

13. ACCESS, INGRESS AND EGRESS AND UTILITY EASEMENT AGREEMENT WITH TOWNE PARK NORTH CONDOMINIUM RECORDED IN O.R. BOOK 706, PAGE 833, AS AFFECTED BY INSTRUMENT RECORDED IN O.R. BOOK 2003, PAGE 1824, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA. **EASEMENT TERMINATED/ABANDONED.**

14. RECREATION EASEMENT AGREEMENT RECORDED IN O.R. BOOK 706, PAGE 839, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
LICENSE AGREEMENT TERMINATED BY O.R 3247, P.G 2148.

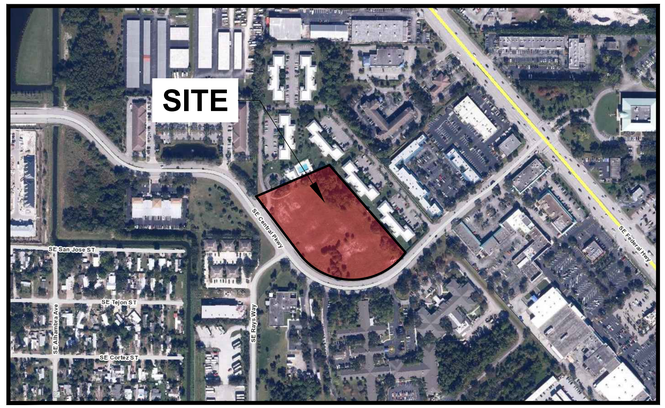
15. DRAINAGE EASEMENT AGREEMENT RECORDED IN O.R. BOOK 706, PAGE 859 AS AFFECTED BY AGREEMENT RECORDED IN O.R. BOOK 2003, PAGE 1822, MARTIN COUNTY, FLORIDA. **TO BE RELOCATED.**

17. RESOLUTION NUMBER 43-06 RECORDED IN O.R. BOOK 2143, PAGE 1710, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
SHOWN ON SURVEY.

18. ORDINANCE NUMBER 2106-07 RECORDED IN O.R. BOOK 2285, PAGE 943, PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA.
AFFECTS SUBJECT PROPERTY; BLANKET IN NATURE.

CERTIFIED TO:

1. JOHNSTON GROUP DEVELOPMENT & DESIGN, INC.
2. 751 SE CENTRAL, LLC.



MARTIN COUNTY, FLORIDA
VICINITY MAP
NO SCALE

SYMBOL & ABBREVIATION LEGEND:

(A)	AIR RELEASE VALVE	DIP	DUCTILE IRON PIPE	HYD	HYDRANT	PCP	PERMANENT CONTROL POINT
AL	ARC LENGTH	E	EAST/EASTING	IN	INCH	PRM	PERMANENT REFERENCE MONUMENT
ASPH	ASPHALT	EOW	EDGE OF WATER	INV	INVERT	P.B.	PLAT BOOK
BFP	BACK FLOW PREVENTER	EB	ELECTRIC BOX	IP	IRON PIPE	(P)	PLAT DATA
	BENCHMARK (BM)	EHH	ELECTRIC HAND HOLE (EHH)	IR	IRON ROD	P.O.B.	POINT OF BEGINNING
	BIKE RACK	EM	ELECTRIC METER	IR/C	IRON ROD AND CAP	P.O.C.	POINT OF COMMENCEMENT
CATV	CABLE RISER	ELEC. PANEL	ELECTRICAL PANEL		IRRIGATION CONTROL VALVE	P.C.C.	POINT OF COMPOUND CURVE
(C)	CALCULATED	EL./ELEV.	ELEVATION	L	LENGTH	P.C.	POINT OF CURVATURE
	CATCH BASIN	FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY		LIGHT POST	P.T.	POINT OF TANGENCY
	CENTERLINE	F.O.	FIBER OPTIC	MAG/D	MAG NAIL MAG BRAND NAIL	P.O.T.	POINT OF TERMINUS
CCR	CERTIFIED CORNER RECORD	FOHH	FIBER OPTIC HAND HOLE	M	MAILBOX	PVC	POLYVINYL CHLORIDE
CLF	CHAIN LINK FENCE		FIBER OPTIC MARKER	M.C.	MARTIN COUNTY	PSL	PORT SAINT LUCIE, FLORIDA
CHD.	CHORD	FIBER RISER	FIBER OPTIC RISER	MHWL	MEAN HIGH WATER LINE	PLS	PROFESSIONAL LAND SURVEYOR
CO O	CLEAN OUT	(M)	FIELD MEASURED	MLWL	MEAN LOWER WATER LINE	R	RADIUS
COMM RISER	COMMUNICATION RISER	F.F.E.	FINISHED FLOOR ELEVATION		METAL LIGHT POST	RGE	RANGE
CONC	CONCRETE	FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION		METAL POWER POLE	RTK	REAL TIME KINEMATIC
	CONCRETE LIGHT POST	FPL	FLORIDA POWER AND LIGHT	MP	METAL PIPE	RWV	RECLAIMED WATER VALVE
CM	CONCRETE MONUMENT	FT	FOOT	MON	MONUMENT	RLS	REGISTERED LAND SURVEYOR
CPP	CONCRETE POWER POLE (CPP)	FM	FORCE MAIN	NGVD29	NATIONAL GEODETIC VERTICAL DATUM OF 1929	RCP	REINFORCED CONCRETE PIPE
	CONCRETE POWER POLE W/STREET LIGHT	FND	FOUND	N/D	NON DESCRIPT NAIL AND DISK	R/W	RIGHT-OF-WAY
	CONCRETE SIGNAL LIGHT POLE	(F)	FPL MANHOLE	N.R.	NON RADIAL	R/C	ROD AND CAP
CMP	CORRUGATED METAL PIPE	SQ FT.	SQUARE FEET	NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988	(S)	SANITARY MANHOLE
	CURB INLET	GAS	GAS VALVE	N	NORTH OR NORTHING	SV	SANITARY VALVE
	DECORATIVE LIGHT POST	GIS	GEOGRAPHIC INFORMATION SYSTEMS	No.	NUMBER	SEC	SECTION
(D)	DEED	GND	GROUND	O.R.B.	OFFICIAL RECORDS BOOK		PROPERTY CORNER
D.B.	DEED BOOK		GROUND LIGHT	OHW	OVER HEAD WIRES		RIGHT-OF-WAY CONTROL
Δ	DELTA/CENTRAL ANGLE		GUY WIRE ANCHOR	PG	PAGE	S	SOUTH
Ø	DIAMETER (DIA.)		HANDICAP	PCN	PARCEL CONTROL NUMBER		SIGN
(D)	DRAINAGE MANHOLE	HDPE	HIGH DENSITY POLYETHYLENE PIPE	PK NAIL	PARKER-KALON NAIL		SPIGOT
		HWF	HOG WIRE FENCE	PK/D	PARKER-KALON NAIL & DISK		SPRINKLER VALVE

S.L.C.	ST. LUCIE COUNTY		STORMWATER DRAINAGE MANHOLE
STA	STATION		STREET SIGN
TELE RISER	TELEPHONE RISER BOX		TOE OF SLOPE
TOB	TOP OF BANK/BERM	T.O.N.	TOP OF NUT
X 0.0	TOPOGRAPHIC DATA (SOFT SURFACE)		POINT OF TERMINUS
X 0.00	TOPOGRAPHIC DATA (HARD SURFACE)	TWNSHP	TOWNSHIP
	TRAFFIC HANDHOLD		TRAFFIC SIGNAL CONTROL BOX
TYP	TYPICAL	U.E.	UTILITY EASEMENT
UNK	UNKNOWN		UNKNOWN HANDHOLD
UNK HH	UNKNOWN HANDHOLD	RISER BOX	UNKNOWN RISER BOX
	UNKNOWN TYPE MANHOLE	VCP	VITRIFIED CLAY PIPE
WM	WATER METER		WATER SERVICE METER (WM)
WV	WATER VALVE (WV)		WELL
W	WEST	WF	WOOD FENCE
	WOOD POLE STREET LIGHT		WOOD POWER POLE

LEGAL DESCRIPTION:

TOWNE PARK, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 11, PAGE 85, PUBLIC RECORDS OF MARTIN COUNTY FLORIDA.

CONTAINING 4.88 ACRES, MORE OR LESS.

SURVEYORS NOTES AND REPORT:

1. REPRODUCTIONS OF THIS MAP ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. THIS SURVEY CANNOT BE TRANSFERRED OR ASSIGNED WITHOUT THE SPECIFIC WRITTEN PERMISSION OF ENGINEERING, DESIGN AND CONSTRUCTION, INC. IT IS A VIOLATION OF CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, TO ALTER THIS SURVEY WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE SURVEYOR. ADDITIONS AND/OR DELETIONS MADE TO THE FACE OF THIS SURVEY WILL MAKE THIS SURVEY INVALID.
2. THE LAST DATE OF FIELD WORK WAS JULY 15, 2021.
3. CURRENT DESCRIPTION(S) SHOWN HEREON PROVIDED BY: THE CLIENT, A TITLE SEARCH FOR THIS PROPERTY HAS BEEN ABSTRACTED TO SHOW MATTERS OF RECORD SUCH AS EASEMENTS OR OTHER ENCUMBRANCES OR RESTRICTIONS.
4. THE EXPECTED USE OF THE LAND, AS CLASSIFIED IN CHAPTER 5J-17.050-053, FLORIDA ADMINISTRATIVE CODE, IS "COMMERCIAL/HIGH RISK." THE MINIMUM RELATIVE DISTANCE ACCURACY FOR THIS TYPE OF BOUNDARY SURVEY IS 1 FOOT IN 10,000 FEET. THIS SURVEY EXCEEDS THE REQUIRED DISTANCE ACCURACY.
5. THIS BOUNDARY SURVEY HAS BEEN REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM-EAST ZONE, NAD 83 (1990).
6. SUB-SURFACE IMPROVEMENTS INCLUDING UNDERGROUND UTILITIES, UTILITY SERVICES, WERE NOT LOCATED AS PART OF THIS SURVEY.
7. REVISIONS SHOWN HEREON DO NOT REPRESENT A "FIELD SURVEY UPDATE" UNLESS OTHERWISE NOTED.
8. BEARINGS SHOWN HERON ARE BASED UPON GRID BEARINGS AND REFERENCE TO THE LINE LABELED HERON AS (BEARING BASIS) AND ALL OTHER BEARINGS ARE RELATIVE THERETO. DISTANCES ARE IN U.S. SURVEY FEET AND DECIMAL PARTS THEREOF.
9. ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND BASED ON MARTIN COUNTY BENCHMARK "CPW-3", ELEVATION 10.70 FEET, AND BENCHMARK "CPW-4", ELEVATION 11.94 FEET.
10. THIS SITE WAS SURVEYED UTILIZING TRIMBLE/SPRECTRA HARDWARE TOGETHER WITH SPECTRA SURVEY PRO REALTIME PROCESSING AND WAS BASED ON TRIMBLES "VRS NOW" NETWORK AND/OR THE FLORIDA PERMANENT REFERENCE NETWORK (FPRN). THE PROCEDURES AND NETWORK DESIGN MEETS THE GEODETIC ACCURACY STANDARDS AND SPECIFICATIONS FOR USING GPS RELATED POSITIONING AS SET FORTH BY THE FEDERAL GEODETIC CONTROL COMMITTEE IN THE MOST CURRENT PUBLICATION FOR 3RD ORDER CLASS ONE FOR HORIZONTAL CONTROL SURVEYS.
11. IN SOME INSTANCES, GRAPHIC REPRESENTATIONS AND SYMBOLS SHOWN HAVE BEEN EXAGGERATED TO MORE CLEARLY ILLUSTRATE THE RELATIONSHIP BETWEEN PHYSICAL IMPROVEMENTS AND/OR LOT LINES. THE DIMENSIONS SHOWN SHALL CONTROL THE LOCATION, OF THE IMPROVEMENTS, OVER THE SCALED POSITIONS.
12. THE OWNERSHIP OF PERIMETER FENCES, WALLS, HEDGES AND LANDSCAPING, IF ANY, SHOWN HEREON ARE NOT KNOWN AND ARE NOT LISTED AS ENCROACHMENTS. THEIR RELATIVE LOCATION IS SHOWN IN RELATION TO THE BOUNDARY LINES SHOWN.
13. THE SURVEY MAP SHOWN HEREON DOES NOT NECESSARILY CONTAIN ALL OF THE INFORMATION OBTAINED OR DEVELOPED BY THE UNDERSIGNED SURVEYOR IN HIS FIELD WORK, OFFICE WORK OR RESEARCH.
14. THE PROPERTY WHICH IS THE SUBJECT OF THIS SURVEY APPEARS TO BE SITUATE IN AN AREA OF MINIMAL FLOOD HAZARD ZONE X AT THIS TIME PURSUANT TO F.E.M.A. FIRM NUMBER 12085C0161H, HAVING AN EFFECTIVE DATE OF FEBRUARY 19, 2020. FOR APPROXIMATE DELINEATION OF THE FLOOD ZONE LIMITS, REFER TO AFOREMENTIONED FIRM PANELS.

MICHAEL T. OWEN PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA REGISTRATION #5556

SIGNATURE DATE:

ENGINEERS SURVEYORS ENVIRONMENTAL
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MTO	CHECKED BY
SV	FIELD CREW
21-353.DWG	FILENAME
AS SHOWN	SCALE
February 16, 2022	DATE

2/18/22	REVISED PER CLIENT COMMENT (EASEMENT LABELS - SPT	
DATE	REVISION COMMENTS	

BOUNDARY & TOPOGRAPHIC SURVEY
FOR: CYPRESS HOLDING, LLC.
RECORD INFORMATION
SEC. 9, TWNSHP. 38 SOUTH, RGE. 41 EAST
MARTIN COUNTY, FLORIDA

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21-353

1 OF 3

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GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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DATE	February 18, 2022

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DWG NAME: 21-353 BTT_rev1.dwg LAST EDITED BY: Sharon Thomas
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BOUNDARY & TOPOGRAPHIC SURVEY

FOR: CYPRESS HOLDINGS, LLC.



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 inch = 60 ft.

TREE TABLE:

TAG#	TREE NAME	DIAMETER(IN)
1101	PALM	
1102	PALM	
1103	PALM	
1104	PALM	
1105	PALM	
1106	PALM	
1107	PALM	
1108	PALM	
1109	PINE	20
1110	PINE	16
1111	PINE	12
1112	PINE	12
1113	PINE	10
1114	PALM	
1115	PINE	12
1116	PINE	14
1117	PINE	14
1118	PALM	
1119	PINE	15
1120	PINE	14
1121	PINE	12
1122	PINE	12
1123	PINE	8
1124	PINE	10
1125	PINE	14
1126	PINE	20
1127	PALM	
1128	PINE	8
1129	PINE	20
1130	PINE	16
1131	PINE	20
1132	PINE	16
1133	PINE	14
1134	PALM	
1135	PINE	10
1136	PINE	10
1137	PINE	10
1138	PALM	
1139	PALM	
1140	PALM	
1141	PALM	
1142	PALM	
1143	PALM	
1144	PALM	
1145	PALM	
1146	PALM	
1147	PALM	
1148	PALM	
1149	PALM	
1150	PALM	
1151	PALM	
1152	PALM	
1153	PALM	
1154	PALM	
1155	PALM	
1156	PALM	
1157	PALM	

1158	PALM	
1159	PALM	
1160	PALM	
1161	PALM	
1162	PALM	
1163	PALM	
1164	PALM	
1165	PALM	
1167	PALM	
1168	PALM	
1169	PALM	
1170	PALM	
1171	PALM	
1172	PALM	
1173	PALM	
1174	PALM	
1175	PALM	
1176	PALM	
1177	PALM	
1178	PALM	
1179	PALM	
1180	PALM	
1181	PALM	
1182	PALM	
1183	PALM	
1184	PALM	
1185	PALM	
1186	PALM	
1187	PALM	
1188	PALM	
1189	PALM	
1190	PALM	
1191	PALM	
1192	PALM	
1193	PALM	
1194	PALM	
1195	PINE	12
1196	PALM	
1197	PALM	
1198	MAHOGANY	13
1199	PINE	15
1200	PINE	13
1201	PINE	13
1202	MAHOGANY	6
1203	PALM	
1204	PINE	8
1205	PALM	
1206	PINE	16
1207	PALM	
1208	PINE	10
1209	PINE/FIG	48
1210	PINE	13
1211	PINE	15
1212	PINE	16
1213	PALM	
1214	PINE	20
1215	PINE	7

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RECORD INFORMATION
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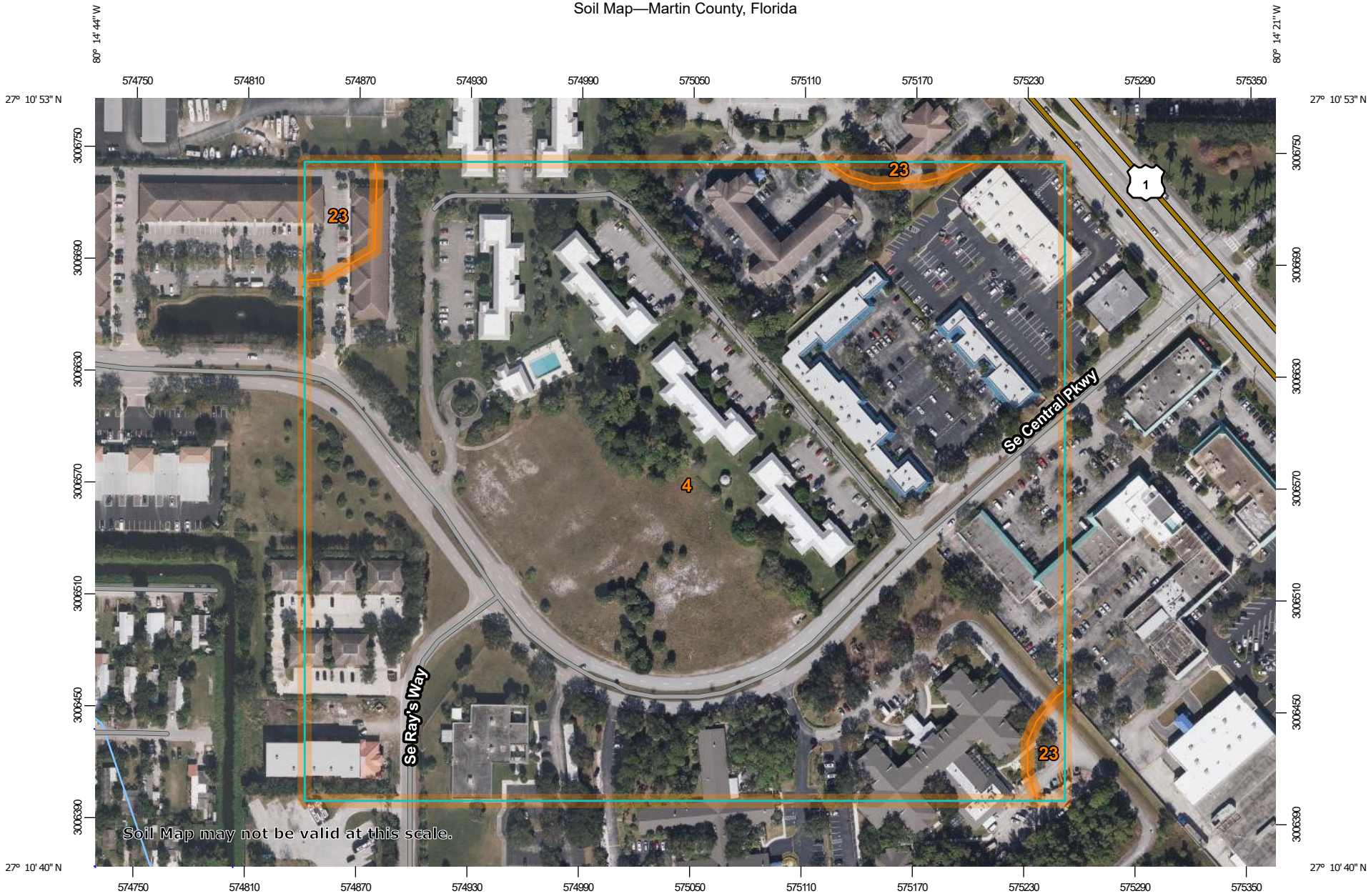
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3 OF 3

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Sailfish Cay ERP's
Suburban Extended Stay Hotel Stuart Near...
AutoZone Auto Parts
Beauty Bar
Ahn's Martial Arts Academy
Tijuana Flats
Jupiter Donuts
Sonny's BBQ
Ex. Pipe and MES
App# 900626-8
CE: 13.0 NGVD
FFE: 17.60
App# 941026-6
CE: 12.5 NGVD
FFE: 16.35
Fujiyama
Supreme Meats
Goodwill Stuart Store & Donation Center
CareerSource Research Coast
Solaris Senior Living Stuart
Morning Glory Cafe
Solaris HealthCare Parkway
CS to 25' Drainage Easement
Big Lots
Monterey Glass Specialists
NAPA Auto Parts - Performance
Google Earth
800 ft
N



Map Scale: 1:2,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Martin County, Florida
Survey Area Data: Version 20, Aug 25, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 21, 2021—Feb 4, 2021

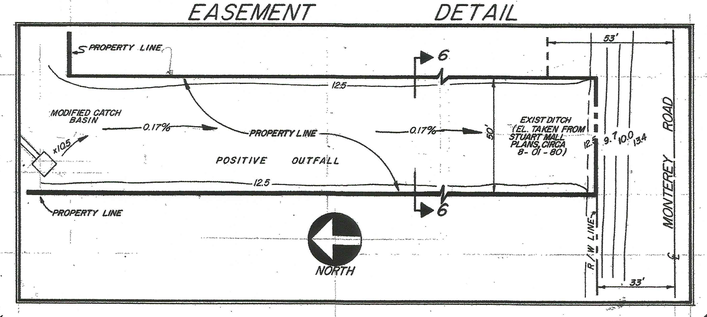
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Waveland and Immokalee fine sands	33.9	97.3%
23	Urban land, 0 to 2 percent slopes	0.9	2.7%
Totals for Area of Interest		**34.8**	**100.0%**

AF 13308

EASEMENT DETAIL



NORTH

SCALE - 1" = 50'

SECTION 6-6

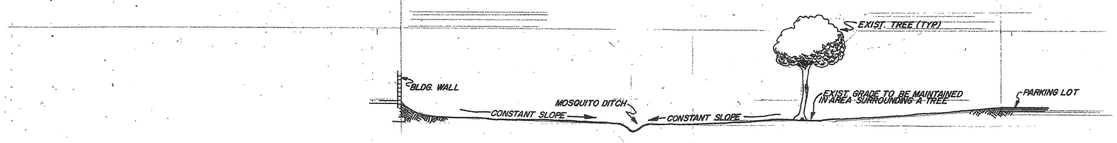
	JOB NO.: 333-01	SHEET TITLE: DRAINAGE PLAN
	FIELD BK.:	PROJECT: TOWNE PARK SOUTH
PROFESSIONAL ENGINEER FLORIDA CERT. NO. 19658	FILE NO.:	SHEET NO. 6 OF 18

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ENGINEERS · SURVEYORS
DESIGNERS · LAND PLANNERS · CONSULTANTS
41 KINDRED AVE. · STUART, FLORIDA
(305) 287-0525

AF 13308

NORTH

SCALE - 1" = 50'



SECTION 5C-5C

NOTE:
TYPICAL SECTION FOR MOSQUITO DITCH AND SURROUNDING RETENTION AREA .

REVISIONS		
BY	DATE	DESCRIPTION
M.M.	7/27/81	ADD - SWALE

DRAWN BY: R.F.P. JR./WANG	CHECK BY: W. J.M.
DATE: 4-28-81	SCALE: 1" = 50'

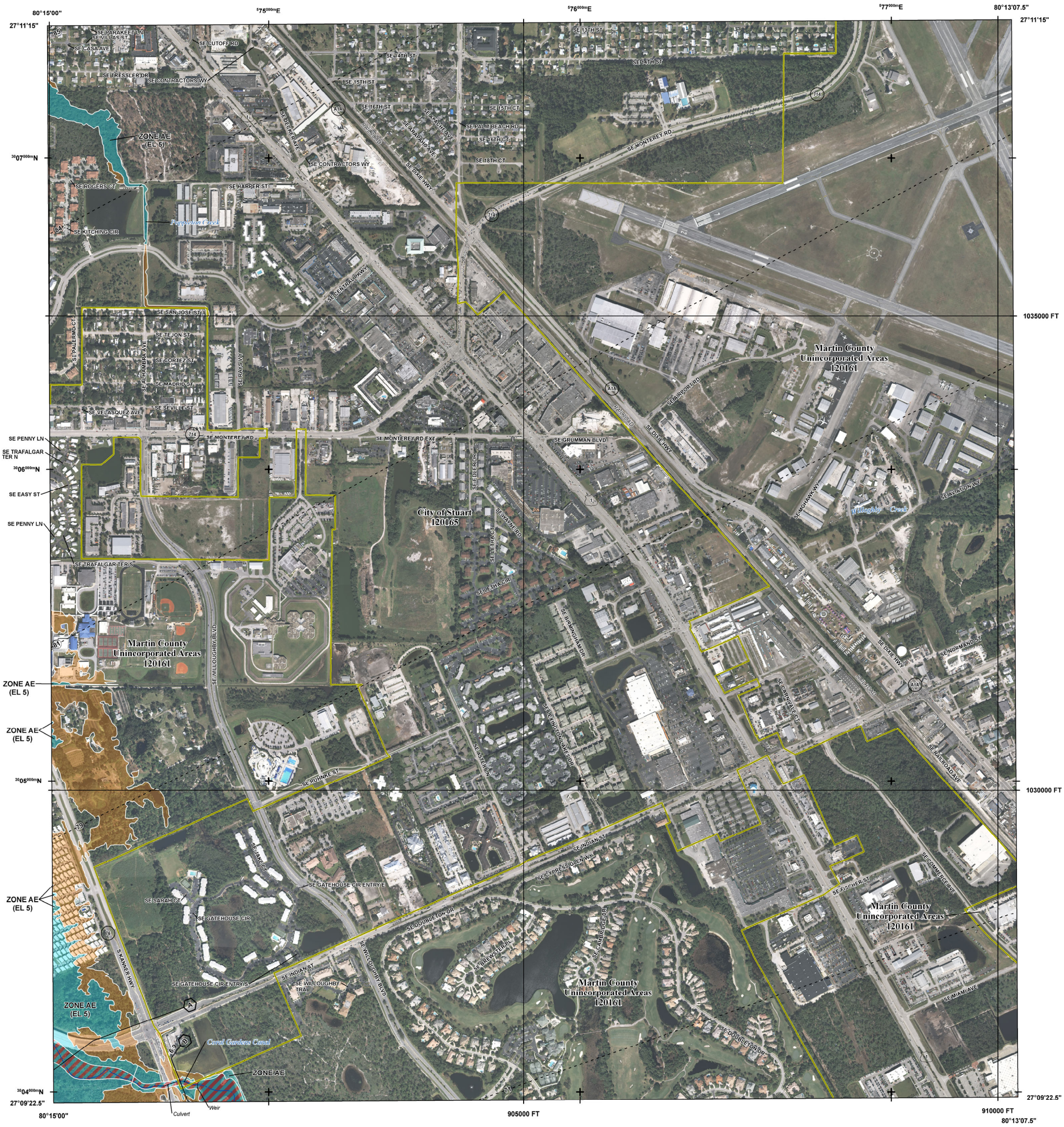
PROFESSIONAL ENGINEER
FLORIDA CERT. NO. 19658

JOB NO.: 333-01	SHEET TITLE: DRAINAGE PLAN
FIELD BK.:	PROJECT: TOWNE PARK NORTH
FILE NO.:	

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SHEET NO. 5 OF 18

X = 10
Y = 8



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A,V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the Martin County Information Technology Services Department, dated 2003, 2012 and 2015; the Florida Department of Transportation, dated 2014, 2015 and 2016; the U.S. Geological Survey, dated 2006; and the U.S. Department of Agriculture, dated 2016.

SCALE

N

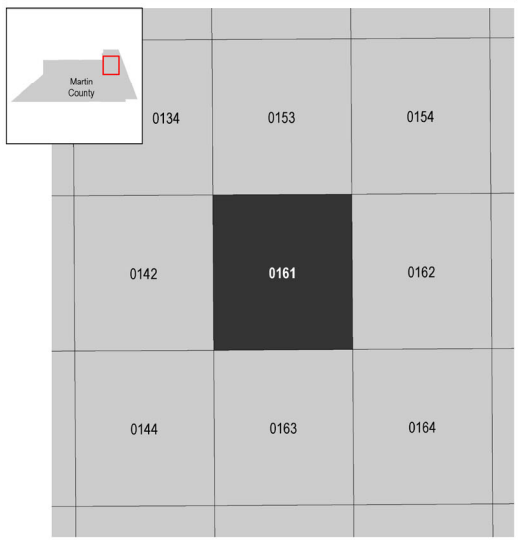
Map Projection:
State Plane Transverse Mercator, Florida East Zone 0901; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

MARTIN COUNTY, FLORIDA
and Incorporated Areas

PANEL 161 OF 527

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARTIN COUNTY	120161	0161	H
STUART, CITY OF	120165	0161	H

VERSION NUMBER
2.3.3.2

MAP NUMBER
12085C0161H

MAP REVISED
FEBRUARY 19, 2020

Appendix B: Drainage Calculations

GENERAL SITE INFORMATION: V 8.6

GO TO INTRODUCTION PAGE

2/18/2022

Blue Numbers =	Input data
Red Numbers =	Calculated or Carryover

HELP Rainfall

Select the appropriate Meteorological Zone, input the appropriate Mean Annual Rainfall amount and select the type of analysis

NAME OF PROJECT: Sailfish Cay

VIEW ZONE MAP

Meteorological Zone (Please use zone map): CLICK ON CELL BELOW TO SELECT — Zone 2

Mean Annual Rainfall (Please use rainfall map): 55.00 Inches

VIEW MEAN ANNUAL RAINFALL MAP

Type of analysis: CLICK ON CELL BELOW TO SELECT — Net improvement

Treatment efficiency (N, P) (ex 80 70 (no decimal points) **use only for specified removal efficiency**): % %

GO TO WATERSHED CHARACTERISTICS

Select the STORMWATER TREATMENT ANALYSIS Button below to begin analyzing the effectiveness of Best Management Practices.

Model documentation and example problems.

STORMWATER TREATMENT ANALYSIS

Systems available for analysis:
Retention Basin with option for calculating effluent concentration
Wet Detention
Exfiltration Trench
Pervious Pavement
Stormwater Harvesting
Biofiltration
Greenroof
Rainwater Harvesting
Managed Aquatic Plants Detention
Vegetated Natural Buffer
Vegetated Filter Strip
Swale
Rain Garden
Tree Well
Lined reuse pond
User Defined BMP

There is a user's manual for the BMPTRAINS model. It can be downloaded from www.stormwater.ucf.edu. The results from the example problems shown in the manual however may not reflect current model results due to ongoing updates of the model.

RESET INPUT FOR STORMWATER TREATMENT ANALYSIS

METHODOLOGY FOR CALCULATING REQUIRED TREATMENT EFFICIENCY

METHODOLOGY FOR RETENTION SYSTEMS

METHODOLOGY FOR WET DETENTION SYSTEMS

METHODOLOGY FOR GREENROOF SYSTEMS

METHODOLOGY FOR WATER HARVESTING SYSTEMS

WATERSHED CHARACTERISTICS V 8.6

GO TO STORMWATER TREATMENT ANALYSIS

Blue Numbers = Input data | Red Numbers = Calculated | LAND USES/EMC

SELECT CATCHMENT CONFIGURATION 2/18/2022

CLICK ON CELL BELOW TO SELECT CONFIGURATION: D - 3 Catchment-Series

VIEW CATCHMENT CONFIGURATION

COMINGLING | MULTI-LAND USE

GO TO GENERAL SITE INFORMATION PAGE

For comingling, the off-site catchment must be upstream. The delay is only for retention BMPs and must be used in hours as measured by the time of concentration at a one inch/hour rain

VIEW AVERAGE ANNUAL RUNOFF "C" Factor

VIEW EMC & FLUCCS

GO TO GIS LANDUSE DATA

CATCHMENT NO.1

Delay [hrs] | CATCHMENT NO.1 NAME: SailFish Cay

max delay = 15 hrs.

Pre-development land use:	CLICK ON CELL BELOW TO SELECT: Undeveloped - Ruderal/Upland Pine: TN=1.694 TP=0.162
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT: Multi-Family: TN=2.320 TP=0.520
with default EMCs	

Total pre-development catchment area:	4.880	AC
Total post-development catchment or for BMP analysis:	4.880	AC
Pre-development Non DCIA CN:	80.00	
Pre-development DCIA percentage:	0.90	%
Post-development Non DCIA CN:	92.00	
Post-development DCIA percentage:	58.80	%
Estimated BMP Area (No loading from this area)	0.500	AC

OVERWRITE DEFAULT CONCENTRATIONS USING:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

Average annual pre runoff volume:	2.624	ac-ft/year
Average annual post runoff volume (note no BMP area):	12.086	ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**	5.481	kg/year
Pre-development Annual Mass Loading - **Phosphorus:**	0.524	kg/year
Post-development Annual Mass Loading - **Nitrogen:**	34.580	kg/year
Post-development Annual Mass Loading - **Phosphorus:**	7.751	kg/year

CATCHMENT NO.2

CATCHMENT NO.2 NAME:

Pre-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	

Total pre-development catchment area:		AC
Total post-development catchment or BMP analysis area:		AC
Pre-development Non DCIA CN:		
Pre-development DCIA percentage:		%
Post-development Non DCIA CN:		
Post-development DCIA percentage:		%
Estimated BMP Area (No loading from this area)		AC

OVERWRITE DEFAULT CONCENTRATIONS:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

Average annual pre runoff volume:		ac-ft/year
Average annual post runoff volume (note no BMP area):		ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**		kg/year
Pre-development Annual Mass Loading - **Phosphorus:**		kg/year
Post-development Annual Mass Loading - **Nitrogen:**		kg/year
Post-development Annual Mass Loading - **Phosphorus:**		kg/year

CATCHMENT NO.3

CATCHMENT NO.3 NAME:

Pre-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT: PLEASE SELECT LAND USE:
with default EMCs	

Total pre-development catchment area:		AC
Total post-development catchment or BMP analysis area:		AC
Pre-development Non DCIA CN:		
Pre-development DCIA percentage:		%
Post-development Non DCIA CN:		
Post-development DCIA percentage:		%
Estimated BMP Area (no loading from this area)		AC

OVERWRITE DEFAULT CONCENTRATIONS:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

Average annual pre runoff volume:		ac-ft/year
Average annual post runoff volume (note no BMP area):		ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**		kg/year
Pre-development Annual Mass Loading - **Phosphorus:**		kg/year
Post-development Annual Mass Loading - **Nitrogen:**		kg/year
Post-development Annual Mass Loading - **Phosphorus:**		kg/year

CATCHMENT NO.4

CATCHMENT NO.4 NAME:

Pre-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT: PLEASE SELECT LAND USE:
with default EMCs	

Total pre-development catchment area:		AC
Total post-development catchment or BMP analysis area:		AC
Pre-development Non DCIA CN:		
Pre-development DCIA percentage:		%
Post-development Non DCIA CN:		
Post-development DCIA percentage:		%
Estimated BMP Area (no loading from this area)		AC

OVERWRITE DEFAULT CONCENTRATIONS:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

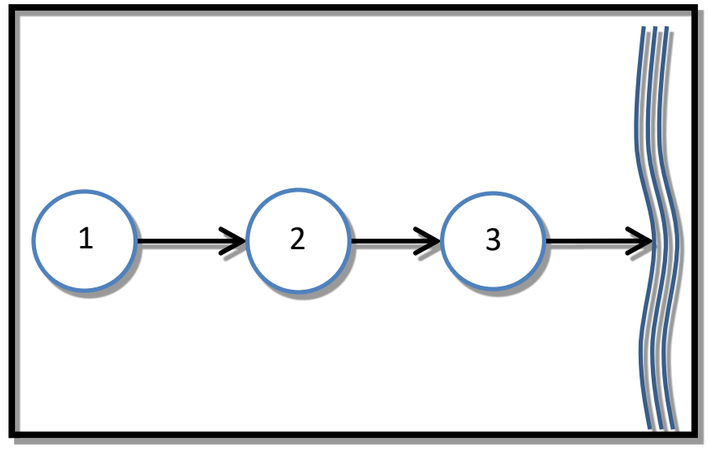
Average annual pre runoff volume:		ac-ft/year
Average annual post runoff volume (note no BMP area):		ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**		kg/year
Pre-development Annual Mass Loading - **Phosphorus:**		kg/year
Post-development Annual Mass Loading - **Nitrogen:**		kg/year
Post-development Annual Mass Loading - **Phosphorus:**		kg/year

STORMWATER TREATMENT ANALYSIS:	V 8.6	GO TO GENERAL SITE INFORMATION PAGE	Blue Numbers =	Input data
			Red Numbers =	Calculated

If not done, specify pre- and post-development watershed characteristics.

2/18/2022

GO TO WATERSHED CHARACTERISTICS



Total Required Treatment Efficiency:

Required Treatment Eff (**Nitrogen**):	84	%
Required Treatment Eff (**Phosphorus**):	93	%

Select one of the BMPs below to analyze efficiency or review the summary data.

RETENTION BASIN	WET DETENTION / MAP	EXFILTRATION TRENCH	RAIN GARDEN / depression storage	SWALE	USER DEFINED BMP
PERVIOUS PAVEMENT	STORMWATER HARVESTING	FILTRATION	View Media Mixes	NOTE !!!: All individual system must be sized prior to being analyzed in conjunction with other systems. Please read instructions in the CATCHMENT AND TREATMENT SUMMARY RESULTS tab for more information.	
GREENROOF	RAINWATER HARVESTING	LINED REUSE POND & UNDERDRAIN INPUT	GO TO COST ANALYSIS WORKSHEET		
VEGETATED NATURAL BUFFER	VEGETATED FILTER STRIP	TREE WELL	CATCHMENT AND TREATMENT SURFACE		

WET DETENTION / MANAGED AQUATIC PLANTS: 2/18/2022 V 8.6

Blue Numbers =	Input data
Red Numbers =	Calculated or Carryover

Also called: FLOATING ISLANDS and includes a wet detention pond: | **Sailfish Cay**

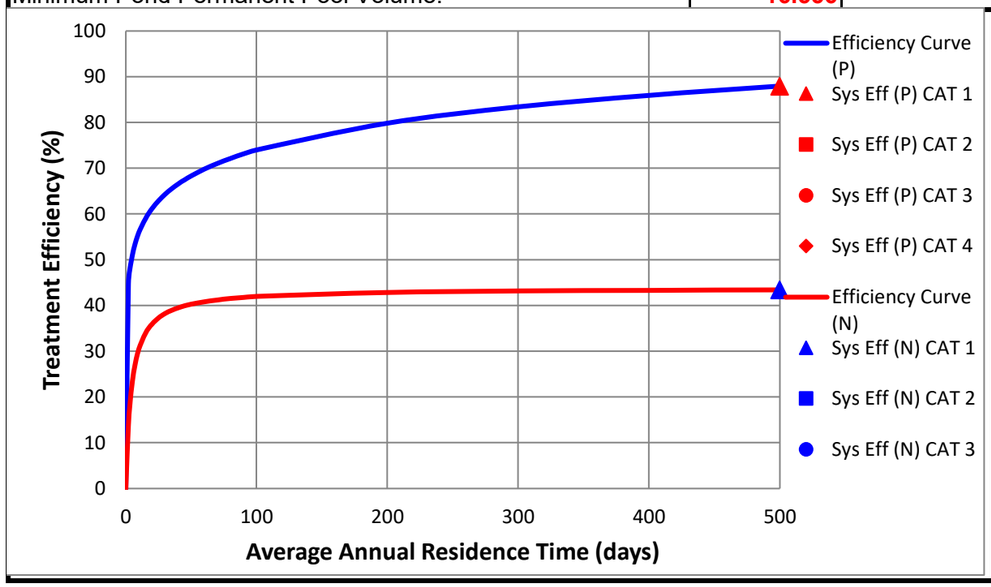
GO TO STORMWATER TREATMENT ANALYSIS

	SailFish Cay	Catchment 2	Catchment 3	Catchment 4	
Total pre-development catchment area:	4.880	0.000	0.000	0.000	ac
Total post-development catchment area:	4.380	0.000	0.000	0.000	ac
Average annual residence time (between 1 and 500 days)	500.00				days
Littoral Zone or other improvements used?*	YES	NO	NO		
Littoral Zone or other improvement efficiency credit:	0.10	0.00	0.00		%
Floating Wetland or Mats used in the design:	NO	NO	NO		
Floating Wetland or Mats credit:	0.00	0.00	0.00		%
Total **Nitrogen** removal required:	84.150				%
Total **Phosphorus** removal required:	93.237				%
Total **Nitrogen** removal efficiency:	43.427	0.000	0.000	0.000	%
Total **Phosphorous** removal efficiency:	87.968	0.000	0.000	0.000	%
Is the wet detention sufficient:	NO				
Average annual runoff volume:	12.086				ac-ft/yr

* pond coverage must follow Regulatory Requirements

Wet Detention Pond Characteristic:

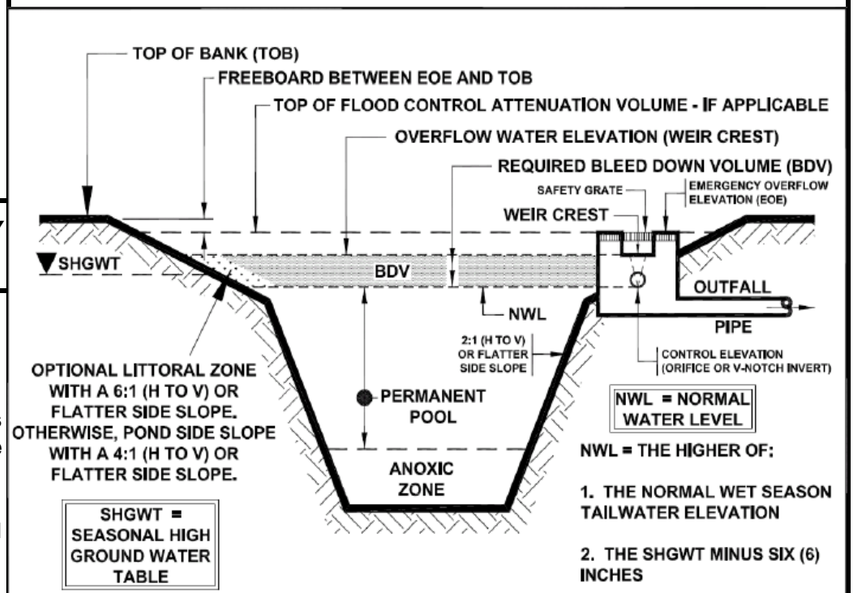
Minimum Pond Permanent Pool Volume:	16.556				ac-ft



NOTE FOR TREATMENT EFFICIENCY GRAPH:

The purpose of the treatment efficiency graphs is to help illustrate the treatment efficiency of the wet detention system as the function of average annual residence time (and permanent pool volume). The graph illustrates that there is a point of diminished return as the permanent pool volume is substantially increased. Therefore, to provide the most economical BMP treatment system, other alternatives such as "treatment trains" and compensatory treatment should be considered.

REQUIRED REMAINING TREATMENT EFFICIENCIES OF TREATMENT SYSTEM IN SERIES WITH FLOATING ISLANDS WITH WET DETENTION. USE FOR SIZING OF TREATMENT SYSTEM IN SERIES WITH FLOATING ISLANDS WITH WET DETENTION.



TYPICAL X-SECTION OF A WET DETENTION SYSTEM

Source of Graphic: draft **STORMWATER QUALITY APPLICANT'S HANDBOOK** dated March 2010, by the Department of Environmental Protection, available at: http://www.dep.state.fl.us/water/wetlands/erp/rules/stormwater, March 2010

RETENTION BASIN: 2/18/2022 V 8.6

Blue Numbers =	Input data
Red Numbers =	Calculated or Carryover

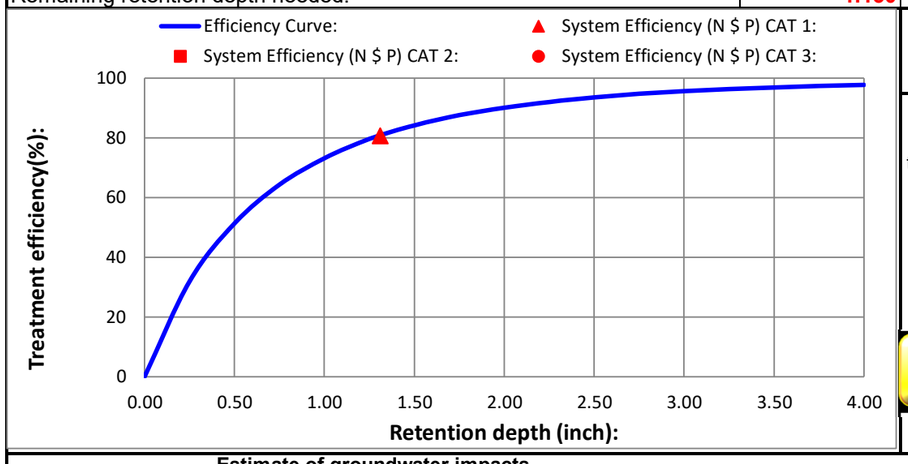
RETENTION BASIN SERVING: Sailfish Cay

GO TO STORMWATER TREATMENT ANALYSIS

Loadings from BMP area are contained by the BMP, thus no BMP area load.	SailFish Cay	Catchment 2	Catchment 3	Catchment 4	
Watershed area cotributing to basin:	4.380	0.000	0.000	0.000	ac
Required Treatment Eff (**Nitrogen**):	84.150				%
Required Treatment Eff (**Phosphorus**):	93.237				%
Required retention depth over the watershed to meet required efficiency:	2.440	0.000	0.000	0.000	in
Required water quality retention volume:	0.890	0.000	0.000	0.000	ac-ft

RETENTION BASIN FOR MULTIPLE TREATMENT SYSTEMS (if there is a need for additional removal efficiencies in a series of BMPs):

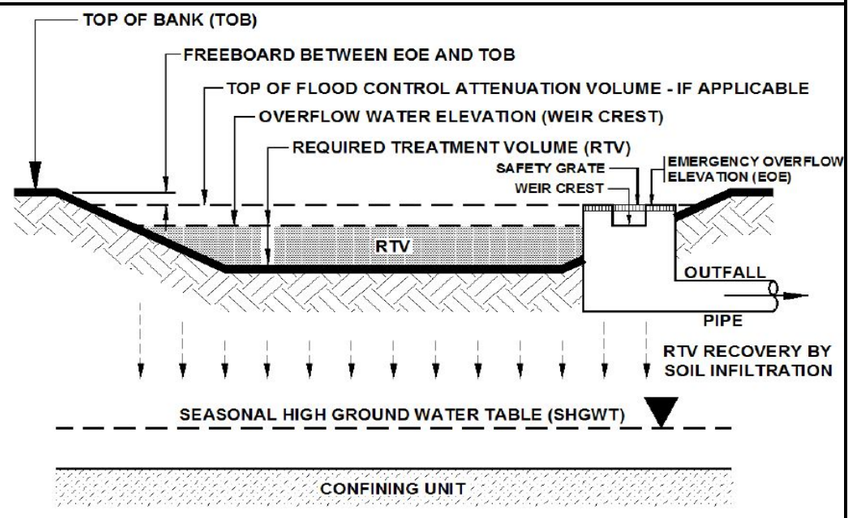
Retention volume based on retention depth and Total area - BMP area	0.478	0.000	0.000	0.000	ac-ft
Provided retention depth (0.1-3.99 inches over the watershed)	1.310				in
Provided treatment efficiency (**Nitrogen**):	80.797	0.000	0.000	0.000	%
Provided treatment efficiency (**Phosphorus**):	80.797	0.000	0.000	0.000	%
Remaining treatment efficiency (**Nitrogen**):	17.460				%
Remaining treatment efficiency (**Phosphorus**):	64.783				%
Remaining retention depth needed:	1.130	0.000	0.000	0.000	in



NOTE FOR TREATMENT EFFICIENCY GRAPH:

The purpose of this graph is to help illustrate the treatment efficiency of the retention system as the function of retention depth **for a single BMP and in a single catchment**. The graph illustrates that there is a diminished return as the retention depth is increased. Thus evaluations of other alternatives in "treatment trains" and compensatory treatment should be considered. **NOTE:** the retention volume can not exceed 3.99 inches to be within the range of data used to determine effectiveness.

HELP - EXAMPLE PROBLEM 3



TYPICAL CROSS SECTION OF A "DRY" RETENTION SYSTEM

View Media Mixes

Estimate of groundwater impacts	Catchment 1	Catchment 2	Catchment 3	Catchment 4
Use only down flow media mix before water enters the ground, specify type				
Nitrogen mass reduction in groundwater discharge (%)				
Phosphorus mass reduction in groundwater discharge (%)				

Source of Graphic: draft **STORMWATER QUALITY APPLICANT'S HANDBOOK** dated March 2010, by the Department of Environmental Protection, available at: http://www.dep.state.fl.us/water/wetlands/erp/rules/stormwater, March 2010.

EXFILTRATION TRENCH:

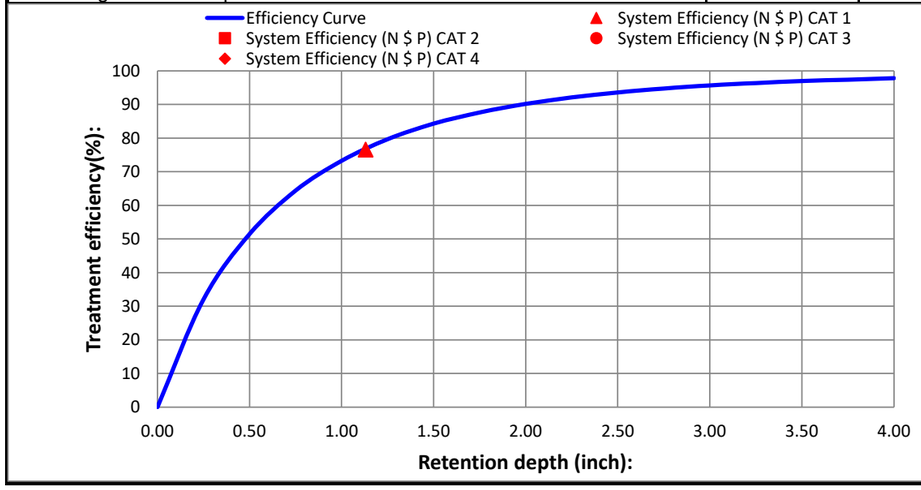
2/18/2022 V 8.6

EXFILTRATION TRENCH SERVING: Sailfish Cay

Note: There are loadings from this BMP area above the trench.	SailFish Cay	Catchment 2	Catchment 3	Catchment 4	
Contributing catchment area:	4.880	0.000	0.000	0.000	ac
Required treatment efficiency (**Nitrogen**):	84.150				%
Required treatment efficiency (**Phosphorus**):	93.237				%
Required retention for the entire catchment to meet required efficiency:	2.440	0.000	0.000	0.000	in
Required water quality retention volume:	0.992	0.000	0.000	0.000	ac-ft

This is an underground system, thus there is no surface area loading reduction for the area of exfiltration

Provided retention depth(0.1-3.99 inches):	1.130				in
Provided treatment efficiency (**Nitrogen**):	76.625	0.000	0.000	0.000	%
Provided treatment efficiency (**Phosphorus**):	76.625	0.000	0.000	0.000	%
Remaining treatment efficiency needed (**Nitrogen**):	32.192				%
Remaining treatment efficiency needed (**Phosphorus**):	32.192				%
Remaining retention depth needed if retention:	1.310	0.000	0.000	0.000	in



NOTE FOR TREATMENT EFFICIENCY GRAPH:

The purpose of this graph is to help illustrate the treatment efficiency of the retention system as the function of retention depth. The graph illustrates that there is a point of diminished return as the retention depth is substantially increased. Therefore, to provide the most economical BMP treatment system, other alternatives such as "treatment trains" and compensatory treatment should be considered.

CATCHMENTS AND TREATMENT SURFACE DISCHARGE SUMMARY V 8.6

CALCULATION METHODS:

1. The effectiveness of each BMP in a single catchment is converted to an equivalent capture volume.
2. Certain BMP treatment train combinations have not been evaluated and in practice they are at this time not used, an example is a greenroof following a tree well.
3. Wet detention is last when used in a single catchment with other BMPs, except when followed by filtration

PROJECT TITLE	Sailfish Cay	Optional Identification	Stormwater Management System	
	SailFish Cay	Catchment 2	Catchment 3	Catchment 4
BMP Name	Retention Basin			
BMP Name	Exfiltration Trench			
BMP Name	Wet Detention/ MAPs			

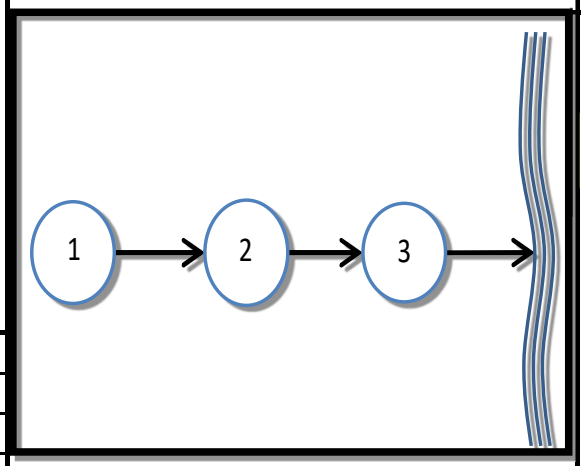
Surface Water Discharge Summary Performance of Entire Watershed

Catchment Configuration	D - 3 Catchment-Series		2/18/2022
Nitrogen Pre Load (kg/yr)	5.48		BMPTRAINS MODEL
Phosphorus Pre Load (kg/yr)	0.52		
Nitrogen Post Load (kg/yr)	34.58		
Phosphorus Post Load (kg/yr)	7.75		
Target Load Reduction (N) %	84		
Target Load Reduction (P) %	93		
Target Discharge Load, N (kg/yr)	5.53		
Target Discharge Load, P (kg/yr)	0.54		
Provided Overall Efficiency, N (%):	95		
Provided Overall Efficiency, P (%):	98		
Discharged Load, N (kg/yr & lb/yr):	1.84	4.05	
Discharged Load, P (kg/yr & lb/yr):	0.17	0.37	
Load Removed, N (kg/yr & lb/yr):	32.74	72.12	
Load Removed, P (kg/yr & lb/yr):	7.58	16.70	

Treatment Objectives or Target for

TN MET

TP MET



EXFILTRATION TRENCH DESIGN

Methodology per SFWMD ERP Permit Information Manual, March 2014

Volumetric Parameters

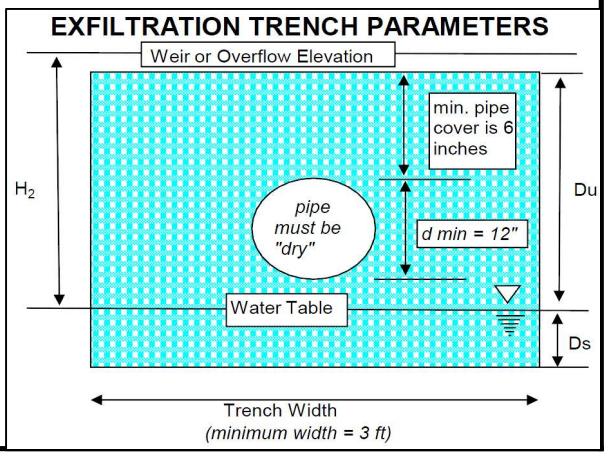
Water quality volume, V_{wq} (Ac-ft)	0.660	*WQ governed by 2.5" x % Impervious
Water quality volume, V_{wq} (Ac-in)	7.92	
Additional Volume, V_{add} (Ac-ft)	0.000	* Additional ***retention storage volume*** as required to meet water quality standards
Additional Volume, V_{add} (Ac-in)	0.00	
Total exfiltration volume, V (Ac-ft)	0.66	
Total exfiltration volume, V (Ac-in)	7.92	

Basin Hydrology & Soil Parameters

Hydraulic conductivity, K (cfs/ft^2-ft head)	5.70E-04	* From geotechnical report
Basin area, A (Ac)	4.88	
Basin soil storage, S (in)	0.54	* Input S value from basin calcs sheet
Basin curve number, CN	95	
Design rainfall, P (in)	11.00	* Input design storm rainfall
Exfiltration storage depth, d_{exf} (in)	1.62	= V / A
Exfiltration rainfall depth, P_{exf} (in)	9.38	= P - d_{exf}
Exfiltration soil storage, S_{exf} (in)	2.16	= S + d_{exf}
Exfiltration curve number, CN_{exf}	82	* Adjusted CN for ICPR Routing Model

Exfiltration Trench Parameters

Trench top elevation, EL_{top} (ft-datum)	10.50
Bubble Up-Dry Detention, EL_{inv} (ft-datum) (Weir)	10.40
Trench bottom elevation, El_{bot} (ft-datum)	6.00
Trench width, W (ft)	7.00
Wet Season High Water Table (ft-datum)(CE)	8.50
Head on saturated surface, H_2 (ft)	1.90
Unsaturated trench depth, D_u (ft)	2.00
Saturated trench depth, D_s (ft)	2.50
Perforated pipe invert, (ft-datum)	8.50
Perforated pipe diameter, (in)	24



Governing Equations

If Ds < Du, and W < 2*(Ds + Du) → No / Yes →

$$L = \frac{V}{k \times (H2 * W + 2 * H2 * Du - Du^2 + 2 * H2 * Ds) + (1.39 \times 10^{-4} * W * Du)}$$

If Ds > Du, or W > 2*(Ds + Du) → Yes / No →

$$L = \frac{V}{k \times (2 * H2 * Du - Du^2 + 2 * H2 * Ds) + (1.39 \times 10^{-4} * W * Du)}$$

Calculations and Results

Calculated trench length required, L (ft)	841.4
Proposed trench length, L (ft)	590.0
Volume treated, V (Ac-ft)	0.46
Volume remaining to be treated (Ac-ft)	0.20
Proposed storage depth, d (in)	1.14

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CN Calculations for Towne Park North Condos

Project: Sailfish Cay
Project #: 21-353
Engineer: MDL
Date: 3/22/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Building =	1.405	0.000	1.405
Impervious =	2.570	0.000	2.570
Dry Retention Area =	0.000	0.000	0.000
Wetland Area =	0.000	0.000	0.000
Developed Compacted Open Space =	0.000	4.614	4.614
Undeveloped or Preserve Land =	0.000	0.000	0.000
TOTAL =	3.975	4.614	8.589

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. = 11.50
Control Elevation = 8.50
Distance to Water Table = 3.00

Soil Storage Table

Depth to W.T. (ft)	Coastal Storage (in)	Flatwoods Storage (in)	Depression Storage (in)
1.0	0.6	0.6	0.6
1.5	1.6	1.6	1.4
2.0	2.5	2.5	2.1
2.5	4.6	4.0	3.3
3.0	6.6	5.4	4.4
3.25	7.7	6.3	5.0
3.5	8.8	7.2	5.6
4.0	10.9	9.0	6.8

Find the basin's soil classification and input below as "Soil Storage" using the above "Depth to W.T.".

Developed Compacted Pervious Area = 4.61 *Does not include BMP area
Undeveloped Pervious Area = 0.00
Soil Storage = 5.40
Soil Moisture Storage (S) = 2.18 inches
Curve Number = **82**

Sailfish Cay On-Site Drainage Calculations

Pre Development Stormwater Calculations

Project: Sailfish Cay
Project #: 21-353
Engineer: MDL
Date: 2/16/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	0.000	0.000	0.00
Pavement and Concrete =	0.042	0.000	0.04
Pond =	0.000	0.000	0.00
Pervious =	0.000	4.840	4.84
TOTAL =	0.04	4.84	4.88

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	12.50
Avg. Seasonal High Water Table =	8.50
Control Elevation =	8.50
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Buildings =	0.00	N/A	98	0	Impervious
Pavement and Concrete =	0.04	N/A	98	4	Impervious
Pond =	0.00	N/A	98	0	Impervious
Pervious =	4.84	D	80	387	Open - Good
TOTAL =	4.88			391	
			Weighted CN =	80	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8
**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :	n =	0.011	coefficient
	P_2 =	5.00	inches
	s =	0.001	foot/foot
	L =	0	feet

T_{1A} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1b} :	n =	0.400	coefficient
	P_2 =	5.00	inches
	s =	0.003	foot/foot
	L =	0	feet

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameter for T2:

V= 0.51021769

V=	0.51	
s =	0.001	foot/foot
L =	630	feet

T_1 =	0.3431	hour	=	20.59 minutes
T_t =	0.3431	hour	=	21.0

TC= total T1A+T1B+T2 21.0

Post Development -Stage Storage Calculations

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft)																		
					10.00	10.50	11.00	11.50	12.00	12.50	13.00	13.50	14.00	14.50	15.00	15.50	16.00	16.50	17.00	17.50	18.00	18.50	19.00	19.50
Pavement and Concrete	Linear	0.04	12.40	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.29
Landscape	Linear	4.84	10.30	15.10	0.00	0.02	0.25	0.73	1.46	2.44	3.68	5.16	6.90	8.89	11.14	13.55	15.97	18.39	20.81	23.23	25.65	28.07	30.49	32.91
	Sub-Total:	4.88		Totals:	0.00	0.02	0.25	0.73	1.46	2.44	3.69	5.20	6.96	8.97	11.23	13.67	16.11	18.55	20.99	23.43	25.87	28.32	30.76	33.20
Building Pads		0.00	*Not included in Stage-storage calculations																					
	Total:	4.88																						

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
Basin Storage (Does not include exfil)	
10.00	0.00
10.50	0.02
11.00	0.25
11.50	0.73
12.00	1.46
12.50	2.44
13.00	3.69
13.50	5.20
14.00	6.96
14.50	8.97
15.00	11.23
15.50	13.67
14.00	16.11

Post Development Stormwater Calculations

Project: Sailfish Cay
Project #: 21-353
Engineer: MDL
Date: 2/16/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	1.629	0.000	1.63
Pervious Pavers =	0.095	0.095	0.19
Pavement and Concrete =	1.156	0.000	1.16
Pond =	0.500	0.128	0.63
Bio-Swale =	0.000	0.120	0.12
Pervious =	0.000	1.160	1.16
TOTAL =	3.38	1.50	4.88

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	13.00
Avg. Seasonal High Water Table =	8.50
Control Elevation =	8.50
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Buildings =	1.63	N/A	98	160	Impervious
Pervious Pavers =	0.19	D	80	15	Pervious/Impervious
Pavement and Concrete =	1.16	N/A	98	113	Impervious
Pond =	0.50	N/A	98	49	Impervious
Bio-Swale =	0.12	D	98	12	Impervious
Pervious =	1.29	D	80	103	Open - Good
TOTAL =	4.88			452	
			Weighted CN =	93	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8
**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :	n =	0.011	coefficient
	P_2 =	5.00	inches
	s =	0.001	foot/foot
	L =	0	feet

T_{1A} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1b} :	n =	0.400	coefficient
	P_2 =	5.00	inches
	s =	0.003	foot/foot
	L =	0	feet

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameter for T2:

V= 0.51021769

V=	0.51	
s =	0.001	foot/foot
L =	934	feet

T_1 =	0.5087	hour	=	30.52 minutes
T_t =	0.5087	hour	=	31.0

TC= total T1A+T1B+T2 31.0

Post Development Water Quality Calculations

Project: Sailfish Cay
Project #: 21-353

Engineer MDL
Date 2/16/2022
Revised:

1-inch Over the Project Area - per SFWMD

(Treated Volume) 1-inch * 1-ft/12-in * **4.88** (PROJECT AREA (EXCLUDES UNDEV/WETLANDS)) = 0.41 ac-ft (TREATED VOLUME)

2.5-inches Times the Percent Impervious - per SFWMD

(Site Area) 4.88 (PROJECT AREA (AC)) - (0.50 (LAKES (AC)) + 1.63 (ROOFS (AC))) = 2.75 ac (SITE AREA)

(Impervious Area) 2.75 (SITE AREA (AC)) - 1.42 (PERVIOUS AREA (AC)) = 1.33 ac (IMPERVIOUS AREA)

(% Impervious) IMPERVIOUS AREA * 100% / SITE AREA (AC) = 48.38%

(2.5-in * % Imp.) 2.5-inches * 48.38% (PERCENT IMPERVIOUS) = 1.21 (INCHES TO BE TREATED)

(Treated Volume) 1.21 (TREATED (IN)) * 1-ft/12-in * 4.38 (PROJECT AREA - LAKES (AC)) = 0.44 (TREATED VOLUME)

	SFWMD - STND	OFW - 150%	
Required Wet Detention =	**0.44**	**0.66**	
Required Dry Detention =	**0.33**	**0.50**	
Required Retention =	**0.22**	**0.33**	
	2.5" Times Impervious Governs		

* An additional 0.5-inch of pretreatment for industrial or commercial projects will be needed.
* Per SFWMD, standard water quality volume is 100% for wet detention, 75% for dry detention, and 50% for dry retention
* OFW volume is 150% of the standard SFWMD criteria

Post Development -Stage Storage Calculations

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft) 8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00	12.50	13.00	13.50	14.00	14.50	15.00	15.50	16.00	16.50	17.00	17.50	18.00
Pond @ CE	Vertical	0.5000	8.50	8.50	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75
Pond Slopes	Linear	0.1280	8.50	10.50	0.00	0.01	0.03	0.07	0.13	0.19	0.26	0.32	0.38	0.45	0.51	0.58	0.64	0.70	0.77	0.83	0.90	0.96	1.02	1.09
Bio-Swale Bottom	Vertical	0.0167	12.50	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08
Bio-Swale Slopes	Linear	0.1033	12.50	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.08	0.13	0.18	0.23	0.28	0.34	0.39	0.44	0.49
SWM WQTV Volume					**0.00**	**0.26**	**0.53**	**0.82**	**1.13**	**1.44**	**1.76**	**2.07**	**2.38**	**2.70**	**3.01**	**3.33**	**3.64**	**3.95**	**4.27**	**4.58**	**4.90**	**5.21**	**5.52**	**5.84**
Exfiltration Trench	Vertical		8.50		0.00	0.11	0.24	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Total WQTV Volume					**0.00**	**0.37**	**0.77**	**1.18**	**1.49**	**1.80**	**2.12**	**2.43**	**2.74**	**3.06**	**3.37**	**3.69**	**4.00**	**4.31**	**4.63**	**4.94**	**5.26**	**5.57**	**5.88**	**6.20**
Pavement and Concrete	Linear	1.35	12.50	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.45	1.01	1.68	2.36	3.03	3.70	4.37	5.05	5.72	6.39
Landscape	Linear	1.16	10.50	14.00	0.00	0.00	0.00	0.00	0.00	0.04	0.17	0.37	0.66	1.04	1.49	2.03	2.61	3.19	3.77	4.35	4.93	5.51	6.09	6.67
	Sub-Total:	3.25		**Totals:**	**0.00**	**0.37**	**0.77**	**1.18**	**1.49**	**1.84**	**2.28**	**2.80**	**3.41**	**4.21**	**5.31**	**6.73**	**8.29**	**9.86**	**11.43**	**12.99**	**14.56**	**16.13**	**17.69**	**19.26**
Building Pads		1.63	*Not included in Stage-storage calculations																					
	Total:	4.88																						

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
Basin Storage (Does not include exfil)	
8.50	**0.00**
9.00	**0.26**
9.50	**0.53**
10.00	**0.82**
10.50	**1.13**
11.00	**1.48**
11.50	**1.92**
12.00	**2.44**
12.50	**3.05**
13.00	**3.85**
13.50	**4.95**
14.00	**6.37**

Set Water Quality Elevation

Total Water Quality Volume Required:	0.66 ac-ft	<---	Based on 2.5 times percent impervious (See WQTV Calculations)
Retention Volume Required for Net Improvement:	0.48 ac-ft	<---	Based on Net Improvement (See BMPTrains Calculations)
Retention Volume Remaining for Net Improvement:	0.48 ac-ft	<--	Based on remaining Retention Volume in Lake after Exfiltration and PPV in Lake
Retention Volume Stage for Net Improvement:	**9.41** NAVD	<---	Bleeder set at 10.00 NAVD
Detention Water Quality Volume Remaining:	**0.18** ac-ft		
Required Water Quality Detention Stage:	**9.73** NAVD		
Overflow Weir Elevation:	11.00 NAVD	<---	Proposed Weir Elevation
Water Quality Detention Volume Provided:	**1.32** ac-ft		
Total Water Quality Volume Provided:	**1.80** ac-ft		

Permanent Pool Volume

Depth (ft)	Stage (NAVD)	Area (ac)	Inc Vol (acft)	Total Vol (acft)
0	8	0.5	0	0
2	6	0.44	0.94	26.82
12	-4	0.3	3.7	30.52

Anoxic depth at 12 feet below normal pool

Post Development Bleeder Size Calculations

Project: Sailfish Cay **Engineer:** MDL
Project #: 21-353 **Date:** 2/16/2022

Allowed discharge in the first 24-hours is .5-inches of the required detention.

(Discharge Volume) 0.5-inch * 1-ft/12-in * 4.380 (PROJECT AREA - LAKES (AC)) = 0.183 (TREATED VOLUME) ac-ft

(Conversion) 1-day / 86,400-sec. * 43,560-sf / 1-acre * 0.183 (VOLUME (AC-FT)) = 0.092 (DISCHARGE) cfs

Basin Area = 7.970 ac

Lake Area = 0.000 ac
Bleeder Elevation = 10.00 ft

Bleeder Size (dia) = 3.00 in * First iteration use 3-inch diameter bleeder.

Number of bleeders = 1.00 * Enter the number of bleeders.

Water Quality Stage = 11.00 ft * Enter water quality staqe elevation from the stage-storage table spread sheet.

Bleeder Sizing:

Size bleeder to discharge at a rate of 0.5 in/day for the contributing area.

For circular orifice use the following equation.

$$A = \frac{Q}{4.8 * (H)^{.5}}$$

Q = Maximum Flow (cfs)
A = Cross Sectional Area (sq.ft.)
H = Head above bleeder centroid (ft)

Results, Q = 0.092 cfs
H = 0.875 feet

A = 0.0205 sq.ft.

For diameter of the circular orifice use the following equation.

$$d = \left(\frac{4 * A}{Pi}\right)^{.5}$$

d = diameter (ft)
A = Cross Sectional Area (sq.ft.)

Results, A = 0.0205 sq.ft.

d = 0.1615 feet

Finally, the diameter in inches

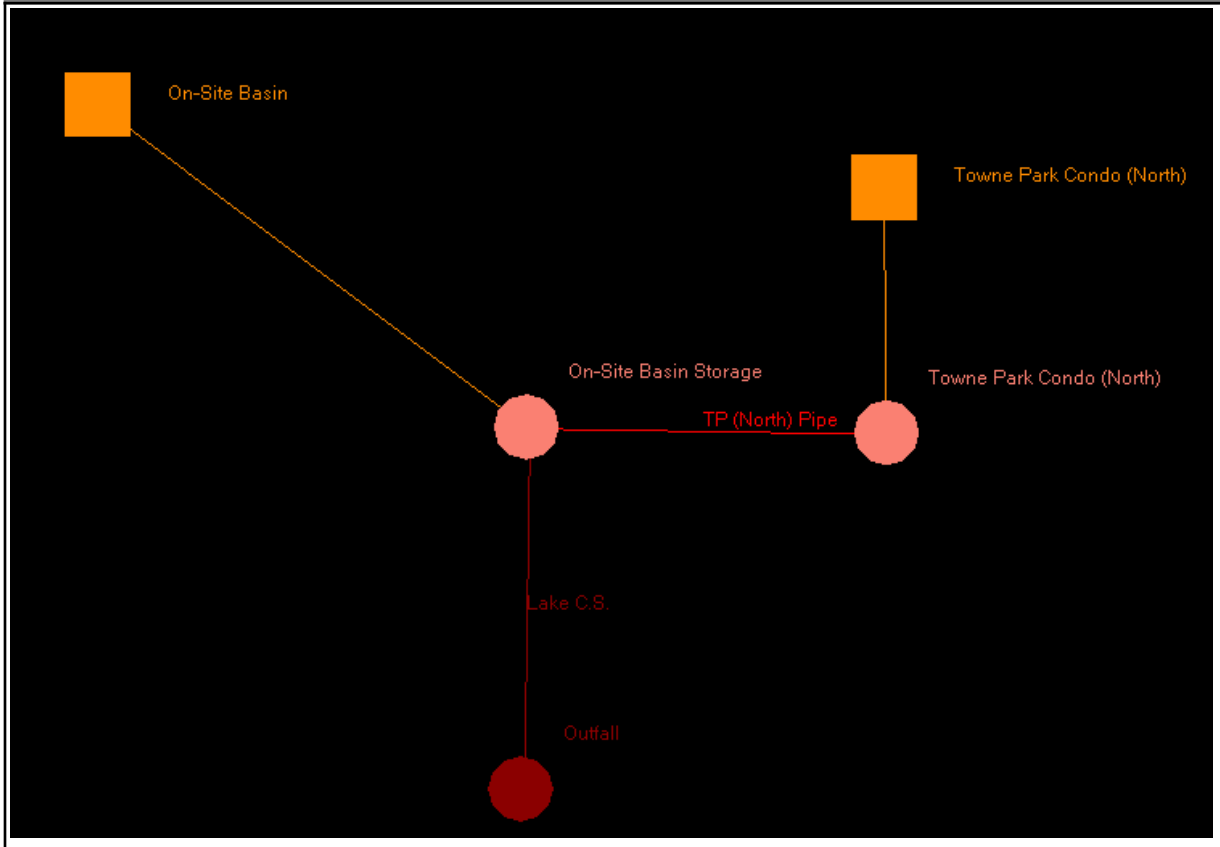
d = 1.94 inches Use minimum sized bleeder

* If diameter is larger than 3-inches than "Bleeder Size" input information needs to be revised until bleeder input size and output diameter equal each other.

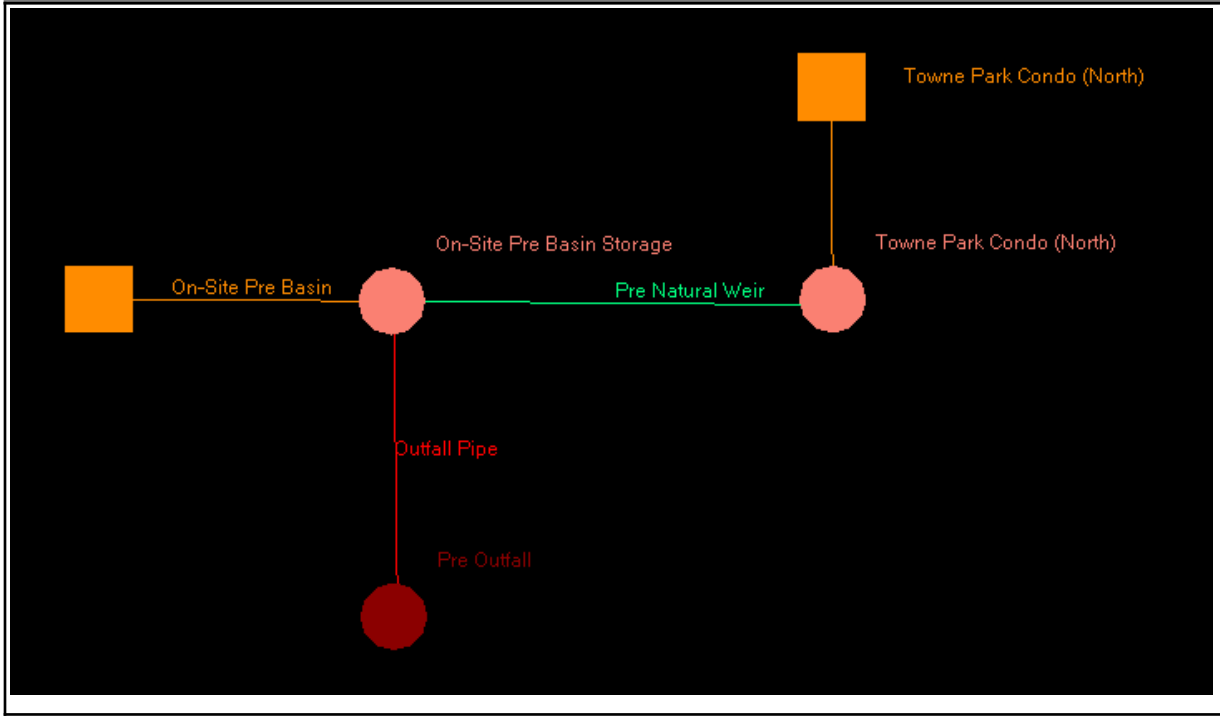
Note: add bleeder diameter to control elevation. Ensure that its less than weir elevation by three inches

Appendix C: ICPR Inputs and Results

Background Image: Post Development



Background Image: Pre-Development



Simulation: 10-1

Scenario: Post Development
Run Date/Time: 3/22/2022 3:19:19 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Post Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 7.00 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Simulation: 10-3

Scenario: Post Development
Run Date/Time: 3/22/2022 3:19:43 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Post Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Post Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	9.50 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 100-3

Scenario: Post Development
Run Date/Time: 3/22/2022 10:51:22 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Post Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

Max dZ: 1.0000 ft

Link Optimizer Tol: 0.0001 ft

Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain Opt: Global

Rainfall Name: ~SFWMD-72

Rainfall Amount: 15.00 in

Storm Duration: 72.0000 hr

Dflt Damping (1D): 0.0050 ft

Min Node Srf Area (1D): 100 ft2

Energy Switch (1D): Energy

Comment:

Simulation: 25-3

Scenario: Post Development

Run Date/Time: 3/22/2022 3:20:35 PM

Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Post Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain: Global

		Opt:	
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	11.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 3-1

Scenario: Post Development
Run Date/Time: 3/22/2022 3:21:05 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Post Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Post Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSIII-24
		Rainfall Amount:	5.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 5-1

Scenario: Post Development
Run Date/Time: 3/22/2022 3:21:34 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Post Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

Max dZ: 1.0000 ft

Link Optimizer Tol: 0.0001 ft

Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain Opt: Global

Rainfall Name: ~SCSIII-24

Rainfall Amount: 6.00 in

Storm Duration: 72.0000 hr

Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment:

Simulation: 10-3

Scenario: Pre Development
Run Date/Time: 3/23/2022 10:43:40 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	Pre Development
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	Pre Development

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	9.50 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 25-3

Scenario: Pre Development
Run Date/Time: 3/23/2022 10:44:35 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Pre Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Pre Development

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 11.00 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Simulation: 3-1

Scenario: Pre Development
Run Date/Time: 3/23/2022 10:45:34 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Pre Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Pre Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSIII-24
		Rainfall Amount:	5.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 5-1

Scenario: Pre Development
Run Date/Time: 3/23/2022 10:46:32 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Pre Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Pre Development

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~SCSIII-24
Rainfall Amount: 6.00 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Curve Number: Post Development [Set]

Land Cover Zone	Soil Zone	Curve Number [dec]
Post Development	On-Site Basin	93.0
Post Development	TPC	82.0

Curve Number: Pre Development [Set]

Land Cover Zone	Soil Zone	Curve Number [dec]
Pre Development	On-Site Pre Basin	80.0
Pre Development	TPC	82.0

Manual Basin: On-Site Basin

Scenario: Post Development
Node: On-Site Basin Storage
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 31.0000 min
Max Allowable Q: 99999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH323
Peaking Factor: 323.0
Area: 4.8800 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
4.8800	Post Development	On-Site Basin	

Comment:

Manual Basin: Towne Park Condo (North)

Scenario: Post Development
Node: Towne Park Condo (North)
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 30.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH323
Peaking Factor: 323.0
Area: 8.5600 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
8.5600	Post Development	TPC	

Comment:

Manual Basin: On-Site Pre Basin

Scenario: Pre Development
Node: On-Site Pre Basin Storage
Hydrograph Method: NRCS Unit Hydrograph

Infiltration Method: Curve Number
Time of Concentration: 21.0000 min
Max Allowable Q: 999999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 4.8800 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
4.8800	Pre Development	On-Site Pre Basin	

Comment:

Manual Basin: Towne Park Condo (North)

Scenario: Pre Development
Node: Towne Park Condo (North)
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 30.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH323
Peaking Factor: 323.0
Area: 8.5600 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
8.5600	Pre Development	TPC	

Comment:

Node: On-Site Basin Storage

Scenario: Post Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 8.50 ft
Warning Stage: 14.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
8.50	0.00	0
9.00	0.26	11326
9.50	0.53	23087
10.00	0.82	35719
10.50	1.13	49223
11.00	1.48	64469
11.50	1.92	83635
12.00	2.44	106286
12.50	3.05	132858

Stage [ft]	Volume [ac-ft]	Volume [ft3]
13.00	3.85	167706
13.50	4.95	215622
14.00	6.37	277477

Comment:

Node Max Conditions w/ Times [Post Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
On-Site Basin Storage	10-1	14.00	12.45	0.0010	30.05	1.22	60097	62.4446	59.8632	0.0000	61.6613
On-Site Basin Storage	10-3	14.00	12.76	0.0010	30.05	1.98	72721	62.2219	60.2264	0.0000	62.1802
On-Site Basin Storage	100-3	14.00	13.75	0.0010	34.59	0.00	122986	72.8868	58.7508	60.0003	0.0000
On-Site Basin Storage	25-3	14.00	12.86	0.0010	30.05	3.62	76927	61.6890	59.9052	0.0000	61.6723
On-Site Basin Storage	3-1	14.00	12.20	0.0010	30.05	1.22	54141	76.2503	36.7421	0.0000	40.4503
On-Site Basin Storage	5-1	14.00	12.21	0.0010	30.05	1.38	54279	75.5283	36.7309	0.0000	40.9700

Node: Outfall

Scenario: Post Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 10.00 ft
Warning Stage: 14.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	10.00
0	0	0	55.0000	11.25
0	0	0	70.0000	12.25
0	0	0	360.0000	10.00

Comment:

Node Max Conditions w/ Times [Post Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Outfall	10-1	14.00	12.25	0.0006	1.22	0.26	0	70.0029	64.0446	61.6696	50.4073
Outfall	10-3	14.00	12.25	0.0006	1.98	0.19	0	70.0052	64.0136	62.1886	32.7635
Outfall	100-3	14.00	11.50	0.0003	0.00	0.00	0	70.0034	61.5868	0.0000	0.0000
Outfall	25-3	14.00	12.25	0.0006	3.62	0.18	0	70.0056	64.0306	61.6806	30.1319
Outfall	3-1	14.00	12.25	0.0006	1.22	0.66	0	70.0003	64.0253	40.4586	70.0003
Outfall	5-1	14.00	12.25	0.0006	1.38	0.61	0	70.0033	64.0116	40.9783	70.0033

Node: Towne Park Condo (North)

Scenario: Post Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 11.50 ft
Warning Stage: 14.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
11.50	0.00	0
12.50	2.66	115870
13.50	8.94	389426
14.00	13.40	583704

Comment:

Node Max Conditions w/ Times [Post Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Towne Park Condo (North)	10-1	14.00	12.44	-0.0300	16.80	30.05	184866	72.3113	0.0001	60.1834	0.0000
Towne	10-3	14.00	12.71	-0.0300	24.04	30.05	222789	72.2386	0.0001	60.1829	0.0000

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Park Condo (North)											
Towne Park Condo (North)	100-3	14.00	13.55	0.0010	39.76	0.00	341616	74.6534	60.5147	60.1670	0.0000
Towne Park Condo (North)	25-3	14.00	12.79	-0.0300	28.35	30.05	233625	65.4973	0.0001	60.1825	0.0000
Towne Park Condo (North)	3-1	14.00	11.81	-0.0300	6.91	30.05	86267	41.3086	0.0001	36.7998	0.0000
Towne Park Condo (North)	5-1	14.00	12.02	-0.0300	8.83	30.05	118240	41.7700	0.0001	36.8003	0.0000

Node: On-Site Pre Basin Storage

Scenario: Pre Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 10.00 ft
Warning Stage: 0.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
10.00	0.00	0
10.50	0.02	871
11.00	0.25	10890
11.50	0.73	31799
12.00	1.46	63598
12.50	2.44	106286
13.00	3.69	160736
13.50	5.20	226512
14.00	6.96	303178
14.50	8.97	390733
15.00	11.23	489179
15.50	13.67	595465

Comment:

Node Max Conditions w/ Times [Pre Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
On-Site Pre Basin Storage	10-3	0.00	12.32	0.0231	23.37	5.41	89007	62.0624	0.0001	0.0000	62.4624
On-Site Pre Basin Storage	25-3	0.00	12.44	0.0231	25.67	6.05	94443	62.1254	0.0001	60.2269	62.1337
On-Site Pre Basin Storage	3-1	0.00	12.23	0.0231	23.37	5.89	85009	72.4472	0.0001	0.0000	68.9821
On-Site Pre Basin Storage	5-1	0.00	12.23	0.0231	23.37	5.68	85042	72.3768	0.0001	0.0000	68.9450

Node: Pre Outfall

Scenario: Pre Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 10.00 ft
Warning Stage: 14.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	10.00
0	0	0	55.0000	11.25
0	0	0	70.0000	12.25
0	0	0	360.0000	10.00

Comment:

Node Max Conditions w/ Times [Pre Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Pre Outfall	10-3	14.00	12.25	0.0006	5.41	2.12	0	70.0041	64.0124	62.4624	69.9957
Pre Outfall	25-3	14.00	12.25	0.0006	6.05	1.42	0	70.0004	64.0171	62.1337	70.0004
Pre Outfall	3-1	14.00	12.25	0.0006	2.69	3.30	0	70.0056	64.0488	38.2942	69.9972
Pre Outfall	5-1	14.00	12.25	0.0006	3.28	3.26	0	70.0018	64.0117	38.3482	69.9935

Node: Towne Park Condo (North)

Scenario: Pre Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 11.50 ft
Warning Stage: 14.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
11.50	0.00	0
12.50	2.66	115870
13.50	8.94	389426
14.00	13.40	583704

Comment:

Node Max Conditions w/ Times [Pre Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Towne Park Condo (North)	10-3	14.00	12.32	-0.0231	24.04	23.37	166640	62.0624	0.0001	60.1834	0.0000
Towne Park Condo (North)	25-3	14.00	12.44	-0.0231	28.35	23.37	185602	62.1254	0.0001	60.1822	0.0000
Towne Park	3-1	14.00	12.23	-0.0231	6.91	23.37	152487	72.6139	0.0001	36.8001	0.0000

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Condo (North)											
Towne Park Condo (North)	5-1	14.00	12.23	-0.0231	8.83	23.37	152615	72.5351	0.0001	36.8009	0.0000

Drop Structure Link: Lake C.S.		Upstream Pipe		Downstream Pipe	
Scenario:	Post Development	Invert:	8.00 ft	Invert:	8.00 ft
From Node:	On-Site Basin Storage	Manning's N:	0.0110	Manning's N:	0.0110
		Geometry: Circular		Geometry: Circular	
To Node:	Outfall	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Solution:	Combine	Op Table:		Op Table:	
Increments:	0	Ref Node:		Ref Node:	
Pipe Count:	1	Manning's N:	0.0000	Manning's N:	0.0000
Damping:	0.0000 ft	Top Clip			
Length:	366.00 ft	Default:	0.00 ft	Default:	0.00 ft
FHWA Code:	0	Op Table:		Op Table:	
Entr Loss Coef:	0.00	Ref Node:		Ref Node:	
Exit Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Loss Coef:	0.00				
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Circular	Op Table:	
Invert:	10.00 ft	Ref Node:	
Control Elevation:	10.00 ft	Discharge Coefficients	
Max Depth:	0.25 ft	Weir Default:	3.200
		Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: bleeder

Weir Component			
Weir:	2	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	11.00 ft	Op Table:	
Control Elevation:	11.00 ft	Ref Node:	
Max Depth:	0.25 ft	Discharge Coefficients	
Max Width:	1.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: weir

Weir Component			
Weir:	3	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Horizontal	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	12.70 ft	Op Table:	
Control Elevation:	12.70 ft	Ref Node:	
Max Depth:	3.00 ft	Discharge Coefficients	
Max Width:	2.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: rim

Drop Structure Comment:

Weir Link: Pre Natural Weir			
Scenario:	Pre Development	Bottom Clip	
From Node:	Towne Park Condo (North)	Default:	0.00 ft
To Node:	On-Site Pre Basin Storage	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	11.10 ft	Discharge Coefficients	
Control Elevation:	11.10 ft	Weir Default:	2.800
Max Depth:	1.00 ft	Weir Table:	

Max Width:	33.00 ft		
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Comment:

Pipe Link: TP (North) Pipe		Upstream		Downstream	
Scenario:	Post Development	Invert:	6.00 ft	Invert:	6.00 ft
From Node:	Towne Park Condo (North)	Manning's N:	0.0130	Manning's N:	0.0130
		Geometry: Circular		Geometry: Circular	
To Node:	On-Site Basin Storage	Max Depth:	2.00 ft	Max Depth:	2.00 ft
		Bottom Clip			
Link Count:	1	Default:	0.00 ft	Default:	0.00 ft
Flow Direction:	Positive	Op Table:		Op Table:	
Damping:	0.0000 ft	Ref Node:		Ref Node:	
Length:	170.00 ft	Manning's N:	0.0000	Manning's N:	0.0000
FHWA Code:	0	Top Clip			
Entr Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Exit Loss Coef:	0.00	Op Table:		Op Table:	
Bend Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Location:	0.00 dec	Manning's N:	0.0000	Manning's N:	0.0000
Energy Switch:	Energy				

Comment:

Pipe Link: Outfall Pipe		Upstream		Downstream	
Scenario:	Pre Development	Invert:	10.04 ft	Invert:	10.83 ft
From Node:	On-Site Pre Basin Storage	Manning's N:	0.0130	Manning's N:	0.0130
		Geometry: Circular		Geometry: Circular	
To Node:	Pre Outfall	Max Depth:	1.50 ft	Max Depth:	1.50 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Damping:	0.0000 ft	Op Table:		Op Table:	
Length:	100.00 ft	Ref Node:		Ref Node:	
FHWA Code:	0	Manning's N:	0.0000	Manning's N:	0.0000
Entr Loss Coef:	0.00	Top Clip			
Exit Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Loss Coef:	0.00	Op Table:		Op Table:	
Bend Location:	0.00 dec	Ref Node:		Ref Node:	
Energy Switch:	Energy	Manning's N:	0.0000	Manning's N:	0.0000

Comment:

PONDS Version 3.3.0278
Retention Pond Recovery - Refined Method
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Devo Seereeram, Ph.D., P.E.

Project Data

Project Name:	Sailfish Cay
Simulation Description:	Recovery Analysis
Project Number:	21-353
Engineer :	MDL
Supervising Engineer:	RJK
Date:	03-22-2022

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum):	-3.00
Water Table Elevation, [WT] (ft datum):	8.50
Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day):	21.53
Fillable Porosity, [n] (%):	30.00
Unsaturated Vertical Infiltration Rate, [Iv] (ft/day):	14.54
Maximum Area For Unsaturated Infiltration, [Av] (ft^2):	7789.0

Geometry Data

Equivalent Pond Length, [L] (ft):	230.0
Equivalent Pond Width, [W] (ft):	105.0

Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

Stage (ft datum)	Area (ft^2)
8.50	0.0
9.00	11326.0
9.50	23087.0
10.00	35719.0
10.50	49223.0
11.00	64469.0
11.50	83635.0

Ditch Data

Ditch (or interceptor trench) parallel to length axis is inactive

Ditch (or interceptor trench) parallel to width axis is inactive

Discharge Structures

Discharge Structure #1 is inactive

Discharge Structure #2 is inactive

Discharge Structure #3 is inactive

Scenario Input Data

Scenario 1 :: Slug Load Recovery

Hydrograph Type: Slug Load
Modflow Routing: Routed with infiltration

Treatment Volume (ft^3) 19167

Initial ground water level (ft datum) 8.50 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.100	2.500	5.500	8.500	11.500
0.250	3.000	6.000	9.000	12.000
0.500	3.500	6.500	9.500	
1.000	4.000	7.000	10.000	
1.500	4.500	7.500	10.500	
2.000	5.000	8.000	11.000	

Modflow Log

MODFLOW CONTROL PARAMETERS
Perimeter boundary condition: constant head
Maximum iterations of outer loop: 150
Maximum iterations of inner loop: 60
Horizontal conductivity within pond: 1000000 (if ground water mound is expected to intersect pond bottom)
Instantanerous storage coefficient: Volumetric balance
Default head closure tolerance: .01
Default residual closure tolerance: .5
Target water budget error: 1
On failure to converge: Rerun limiting inner loop to one iteration
> Maximum number of iterations of outer loop: 500
Running Average Porosity is active
> Starting on pass: 2
> When outer iteration reaches: 50
> Number of data points: 4
Running Average Pond Stage (for discharge structures with tailwater) is active
> Starting on pass: 2
> When outer iteration reaches: 50
> Number of data points: 4
Grid size: 1000 ft (from pond centerline)
Mound Output: none

Begin Scenario 1 3/23/2022 10:17:59
End Scenario 1 3/23/2022 10:17:59

Detailed Results :: *Scenario 1 :: Slug Load Recovery*

Elapsed Time (hours)	Instantaneous Inflow Rate (ft^3/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft^3/s)	Combined Instantaneous Discharge Rate (ft^3/s)	Cumulative Inflow Volume (ft^3)	Cumulative Infiltration Volume (ft^3)	Combined Cumulative Discharge (ft^3)	Flow Type
0.000	3194.5000	0.00000	8.49999	0.00000	0	0.000	0.0	0	N.A.
0.002	3194.5000	0.00000	9.78891	1.31010	0	19167.000	7.9	0	U/P
2.400	0.0000	0.00000	9.69631	0.23436	0	19167.000	2713.4	0	U/S
6.000	0.0000	0.00000	9.64145	0.09924	0	19167.000	4213.9	0	S
12.000	0.0000	0.00000	9.58168	0.06304	0	19167.000	5762.2	0	S
24.000	0.0000	0.00000	9.49971	0.03969	0	19167.000	7739.1	0	S
36.000	0.0000	0.00000	9.43461	0.03007	0	19167.000	9191.6	0	S
48.000	0.0000	0.00000	9.37983	0.02414	0	19167.000	10336.8	0	S
60.000	0.0000	0.00000	9.33210	0.02005	0	19167.000	11277.0	0	S
72.000	0.0000	0.00000	9.28962	0.01702	0	19167.000	12068.8	0	S
84.000	0.0000	0.00000	9.25124	0.01468	0	19167.000	12747.7	0	S
96.000	0.0000	0.00000	9.21621	0.01280	0	19167.000	13337.0	0	S
108.000	0.0000	0.00000	9.18399	0.01126	0	19167.000	13853.6	0	S
120.000	0.0000	0.00000	9.15418	0.00997	0	19167.000	14309.7	0	S
132.000	0.0000	0.00000	9.12649	0.00887	0	19167.000	14714.8	0	S
144.000	0.0000	0.00000	9.10066	0.00793	0	19167.000	15076.2	0	S
156.000	0.0000	0.00000	9.07651	0.00712	0	19167.000	15400.1	0	S
168.000	0.0000	0.00000	9.05388	0.00641	0	19167.000	15691.2	0	S
180.000	0.0000	0.00000	9.03262	0.00578	0	19167.000	15953.6	0	S
192.000	0.0000	0.00000	9.01262	0.00523	0	19167.000	16190.7	0	S
204.000	0.0000	0.00000	8.99378	0.00474	0	19167.000	16405.5	0	S
216.000	0.0000	0.00000	8.97603	0.00431	0	19167.000	16600.5	0	S
228.000	0.0000	0.00000	8.95928	0.00392	0	19167.000	16777.9	0	S
240.000	0.0000	0.00000	8.94347	0.00358	0	19167.000	16939.5	0	S
252.000	0.0000	0.00000	8.92853	0.00327	0	19167.000	17087.1	0	S
264.000	0.0000	0.00000	8.91439	0.00299	0	19167.000	17222.1	0	S
276.000	0.0000	0.00000	8.90101	0.00274	0	19167.000	17345.7	0	S
288.000	0.0000	0.00000	8.88832	----	----	19167.000	17459.1	0	N.A.

Summary of Results *:: Scenario 1 :: Slug Load Recovery*

	Time (hours)	Stage (ft datum)	Rate (ft^3/s)	Volume (ft^3)
Stage				
Minimum	0.000	8.50		
Maximum	0.002	9.79		
Inflow				
Rate - Maximum - Positive	0.002		3194.5000	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			19167.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	288.000			19167.0
Infiltration				
Rate - Maximum - Positive	0.002		1.3101	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	288.000			17459.1
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	288.000			17459.1
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	288.000			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	9.43		9191.6
72 Hour Stage and Infiltration Volume	72.000	9.29		12068.8

Appendix D: Geotechnical Report

LIMITED SUBSURFACE SOIL EXPLORATION AND PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION
4.88 ACRES - 751 SE CENTRAL PARKWAY
STUART, MARTIN COUNTY, FLORIDA

AACE FILE NO. 21-222

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

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AACE FILE NO. 21-222

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- Appendix II — General Notes
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- Appendix IV — Project Limitations and Conditions

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
Geotechnical Engineering
Construction Materials Testing
Environmental Consulting

AACE File No. 21-222
July 19, 2021

Johnston Group Development & Construction, Inc.
224 Chimney Corner Lane, Suite 3032
Jupiter, FL 33458

Attention: Mr. Ryan B. Johnston

LIMITED SUBSURFACE SOIL EXPLORATION AND
PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION
4.88 ACRES - 751 SE CENTRAL PARKWAY
STUART, MARTIN COUNTY, FLORIDA

1.0 INTRODUCTION

In accordance with your request and authorization, Andersen Andre Consulting Engineers, Inc. (AACE) has completed a limited subsurface exploration and preliminary geotechnical engineering analyses for the above referenced project. The purpose of performing this evaluation was to explore shallow soil types and groundwater levels in order to provide preliminary Geotechnical Engineering recommendations for the development of the subject property. Our work included Standard Penetration Test (SPT) borings, hand auger borings, soil hydraulic conductivity (exfiltration) testing, laboratory testing, and engineering analysis.

This report documents our explorations and presents our findings, and summarizes our preliminary opinions. We note that it is recommended that additional subsurface soil explorations be performed once the final locations and details of the proposed development features have been determined. Complete recommendations for site preparation procedures and foundation design for the individual project components can be provided once these additional exploratory efforts have been completed.

1.1 Site Location and Description

The subject site is comprised of the following parcel located at 751 SE Central Parkway in Stuart, Martin County, Florida (within Section 9, Township 38 South, Range 41 East): Parcel ID 09-38-41-011-000-0000-1 (4.88 acres). A Site Vicinity Map (2021 Google Earth aerial photograph) which depicts the location of the site is included on the attached Figure No. 1. The site location is further shown superimposed on the "St. Lucie Inlet, Florida" USGS topographic quadrangle map (2003), also included on Figure No. 1. The USGS map depicts the subject site as relatively level and having an approximate surface elevation of 10 feet relative to the National Geodetic Vertical Datum of 1929. The subject site is depicted as vacant/undeveloped land on the USGS map. No obvious evidence of any mining, landfilling, etc. and no structures are visible on the subject property on the USGS Map.

The site is currently mostly vacant/idle and mainly covered by low grass/weeds, with a few isolated stands of pine and palm trees, and is bordered by properties developed with multi-family residential structures, commercial buildings, and assisted living facilities. Based on our review of readily available on-line historical aerial photographs, the northwestern portion of the site was previously occupied by two structures with associated surface parking; these structures appear to have been demolished around 2007-2008.

1.2 Project Description

Based on our conversations, we understand that you are currently in a due diligence period with respect to a potential purchase of the subject site. We further understand that, at this point, only preliminary information relative to soil types, groundwater levels, etc. is being requested.

Based on our review of the provided Conceptual Site Plan, we do understand that future site development is expected to consist of three-story townhome buildings with associated surface parking, a ±0.5-acre retention pond, and a clubhouse/swimming pool amenity. For this type of construction, we expect maximum wall loads of 3-5 kips per lineal foot and maximum column loads of 150 kips (if any). Further, we have assumed that 2-3 feet of fill will be necessary to raise site grades, with this fill potentially being obtained from the proposed lake.

Should our understanding of the future site development differ significantly from what is described above, we request that we be contacted and given the opportunity to review proposed development plans as they relate to the opinions expressed herein.

2.0 LIMITED FIELD EXPLORATION PROGRAM

Subsurface conditions were explored through a review of the U.S. Department of Agriculture (USDA) Web Soil Survey, through site reconnaissance, and by the performance of Standard Penetration Test (SPT) borings and shallow auger borings. Further, as requested, two soil hydraulic conductivity tests were performed. The purposes of the exploration were (1) to investigate subsurface conditions (i.e. soil types, groundwater levels, etc.) at the subject site, (2) to preliminarily obtain a measure of pertinent engineering properties of subsurface materials and (3) to present restrictions (if any) which these soil and groundwater conditions may place on the future site development.

2.1 Review of USDA Soil Survey

Based on our review of the USDA NRCS Web Soil Survey, the site is generally located in an area characterized by the Waveland and Immokalee fine sands (Map Unit 4) surficial soil type. In brief, this soil type is noted by the USDA NRCS to consist of sandy marine deposits originating from flatwoods within historic marine terraces, with fine sands and loamy sands present to depths in excess of 90 inches below grade. The approximate location of the site is shown superimposed on a copy of the USDA NRCS Web Soil Survey aerial photograph on Figure No. 1. Further, excerpts from the USDA NRCS Web Soil Survey summary report are included in Appendix I.

2.2 Field Work

The limited field exploration program consisted of performing three (3) Standard Penetration Test (SPT) borings and ten (10) hand auger borings at selected, accessible locations within the boundaries of the site. The SPT borings (ASTM D1586) were advanced to depths of 25 feet below the existing grades, and the auger borings (ASTM D1452) were advanced to depths of about 7 feet using 3-inch diameter hand (bucket) augers. In addition, two (2) soil hydraulic conductivity (exfiltration) tests were performed on the site.

Our site visits and field work were performed in the period July 14-16, 2021. The field work locations shown on Figure No. 2 were determined in the field by our field crew using the provided conceptual site plan, a hand-held GPS instrument, aerial photographs, and existing site features as references. The locations should be considered accurate only to the degree implied by the method of measurement used. We preliminarily anticipate that the actual locations are within 15 feet of those shown on Figure No. 2.

Summaries of AACE's field procedures are included in Appendix II, and the individual boring profiles are presented on the attached Sheets No. 1 and 2. Samples obtained during performance of the borings were visually classified in the field, and representative portions of the samples were transported to our laboratory in sealed sample jars for further classification. The soil samples recovered from our explorations will be kept in our laboratory for 60 days, then discarded unless you specifically request otherwise.

3.0 LABORATORY TESTING PROGRAM

Our drillers observed the soil recovered from the borings, placed the recovered soil samples in moisture proof containers, and maintained a log for each boring. The recovered soil samples, along with the field boring logs, were transported to our Port St. Lucie soils laboratory where they were visually examined by AACE's project engineer to determine their engineering classification. The visual classification of the samples was performed in general accordance with the Unified Soil Classification System, USCS. The results of our visual classifications and laboratory analyses are presented on the soil boring profiles on Sheets No. 1 and 2.

4.0 GENERAL SUBSURFACE CONDITIONS

4.1 General Soil Profile

Detailed subsurface conditions are illustrated on the soil boring profiles presented on Sheets No. 1 and 2. The stratification of the boring profiles represents our interpretation of the field boring logs and the results of laboratory examinations of the recovered samples. The stratification lines represent the approximate boundary between soil types. The actual transitions may be more gradual than implied.

In general, at the locations and depths explored, our borings encountered a thin mantle of topsoil (sands with roots/organics), followed by loose to medium dense fine sands (SP) reaching the termination depths of our borings. Further, a 2-3 ft thick stratum of hardpan-type soils was encountered in most borings within the upper 5-8 feet.

The above soil profile is outlined in general terms only; please refer to Sheets No. 1 and 2 for individual soil profile details.

4.2 Measured Groundwater Level

The groundwater table depth as encountered in the borings during the field investigations is shown adjacent to the soil profiles on the attached Sheets No. 1 and 2. As can be seen, at the time of our field work, the groundwater table was encountered at a depth of about 7 feet below the existing ground surface. Fluctuations in groundwater levels should be anticipated throughout the year primarily due to seasonal variations in rainfall and other factors that may vary from the time the borings were conducted.

4.3 Estimated Normal Seasonal High Groundwater Table

In general, the normal seasonal high groundwater table (NSHGWT) is likely during (or in the latter part of) the rainy season in South Florida, which typically ranges from June through September/October of each year. The water table elevations associated with a 100-year flood level (or during an extreme storm event) would be much higher than the normal seasonal high water table elevation. The normal seasonal high groundwater table can also be influenced by the presence of relief points such as canals, lakes, ponds, swamps, etc., as well as by the drainage characteristics of the in-situ soils.

Based upon our field explorations and laboratory examinations, measurements of the ambient groundwater levels, our review of the USDA soil survey, and considering the time of year when our explorations were performed, we estimate that the NSHGWT is about 2 feet above the levels encountered in the borings.

The estimated NSHGWT elevation does not provide any assurance that the groundwater levels will not exceed these estimated levels during any given year in the future. Drainage impediments, storm events or other such occurrences may result in groundwater levels exceeding our estimates. If a more accurate determination of the seasonal groundwater level variations on this site is prudent for the design of the project, we would recommend installing piezometers to allow for a prolonged period of groundwater monitoring.

4.4 Soil Hydraulic Conductivity Testing

Two (2) soil hydraulic conductivity tests were performed at the locations shown on Figure No. 2. In general, the tests were performed in substantial accordance with methods described in the South Florida Water Management District (SFWMD) Environmental Resource Permit Information Manual (ERPIM), Volume IV, and yielded the following results.

Soil Hydraulic Conductivity Test Results

Test No.	Groundwater Depth (ft-bls)	Flow Rate, Q (cfs)	Hydraulic Conductivity, K (cfs/sqf - ft head)
EX-1	Not Encountered	2.0×10^{-2}	6.9×10^{-4}
EX-2	Not Encountered	1.3×10^{-2}	4.5×10^{-4}

The soil hydraulic conductivity test reports are included in Appendix III.

5.0 PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION

5.1 General

The following preliminary evaluation is based on a review of the attached soil boring profiles, our understanding of the project and its current status, and on our experience with similar projects and subsurface conditions. Once plans for development of the subject site have been finalized, the preliminary evaluation presented herein should be supplemented with additional field explorations designed specifically for the proposed construction.

5.2 Structures

In summary, it is our preliminary opinion that the soils on this site are generally adequate to support future 3-story townhome construction on conventional spread foundations or monolithic slabs following typical site preparation methods.

Overall, future site preparation procedures for this site will include clearing of the vegetation currently present on the site (making sure to fully remove stumps/roots), backfilling of craters from removed tree stumps, leveling of uneven terrain, and proofrolling of the building and parking/driveway areas with heavy vibratory compaction equipment. Once the site has been properly prepared, conventional shallow foundations or monolithic slabs proportioned for an allowable soil bearing pressure of 2,500 pounds per square foot (psf) can be used for support of future low-rise residential construction.

5.3 Pavements

The results of our preliminary exploration indicate that the subject site, if prepared properly, is typically suitable for supporting parking/drive areas using a conventional flexible pavement section with an asphaltic concrete wearing surface, a calcareous base course, and compacted, stabilized subgrade. Site preparation is anticipated to consist of the removal of organic topsoil (where encountered) and densification of near-surface soils by compacting the cleared and grubbed ground surface with conventional compaction equipment prior to the placement of embankment soils and/or pavement.

In order to reduce the potential for premature roadway distress, including base deterioration or failure, a minium separation of 18 inches should be maintained between the estimated normal seasonal high groundwater level and the bottom of the limerock/coquina pavement base course. If this is not possible, the use of an asphaltic "black-base" (i.e. FDOT Type B-12.5) or the installation of roadway edge underdrains may be required.

5.4 Retention Pond and Use of Fill Soils (Borrow Suitability)

Based on visual examination the recovered soil samples, and on our experience from numerous similar projects the Stuart/Martin County area, we offer the following general comments with regards to the suitability of the encountered soils for use as structural fill materials:

- Organic topsoil is not considered suitable for use as any type of fill, other than in landscaped areas or other non-structural areas.

- Fine sands (SP) should be suitable to serve as fill soils and with proper moisture control should densify using conventional compaction equipment. Soils obtained from below the water table may require time to dry sufficiently. However, these materials should be suitable for relatively unrestricted use as fill and embankment.

- Most of our borings encountered a relatively shallow, thin stratum of dark brown/brown fine sands (SP) with silt fines and hardpan fragments (hardpan-type soils); this stratum may be significantly more cemented and hard in areas not explored. While hardpan is generally suitable for use as a fill material, hardpan-type soils can be challenging for several reasons:

    - Hardpan can be difficult to excavate, often requiring special equipment, especially in confined excavations such as utility trenches.
    - Excavated hardpan-type soils are often boulder-size chunks of cemented soils which are not easily broken down for re-use as structural fill.
    - When hardpan-type soils are field-pulverized into fragments that can be compacted to an adequately dense matrix, the in-place soil often fails the relative compaction test because during laboratory preparation, the soil is pulverized into smaller particles, resulting in a denser laboratory matrix than that which occurs in the field.

6.0 CLOSURE

The preliminary geotechnical evaluation submitted herein is based on the data obtained from the soil borings presented on Sheets No. 1 and 2, our understanding of the proposed project and its current status, and the assumed loading conditions previously described. Should the proposed site development differ significantly from what is described herein we request that we be notified to ensure that the preliminary recommendations presented herein are valid for the project. Additional limitations and conditions to this report are presented in Appendix IV.

This report includes the recommendation to perform additional exploratory borings within future developement areas prior to completing project plans and specifications. Specific and design-level geotechnical engineering recommendations for site preparation, grading, foundation design, pavement construction, etc. can be provided following these additional explorations.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices for the exclusive use of Johnston Group Development & Construction, Inc. for the proposed subject project. No other warranty, expressed or implied, is made.

We are pleased to be of assistance to you on this phase of your project. When we may be of further service to you or should you have any questions, please contact us.

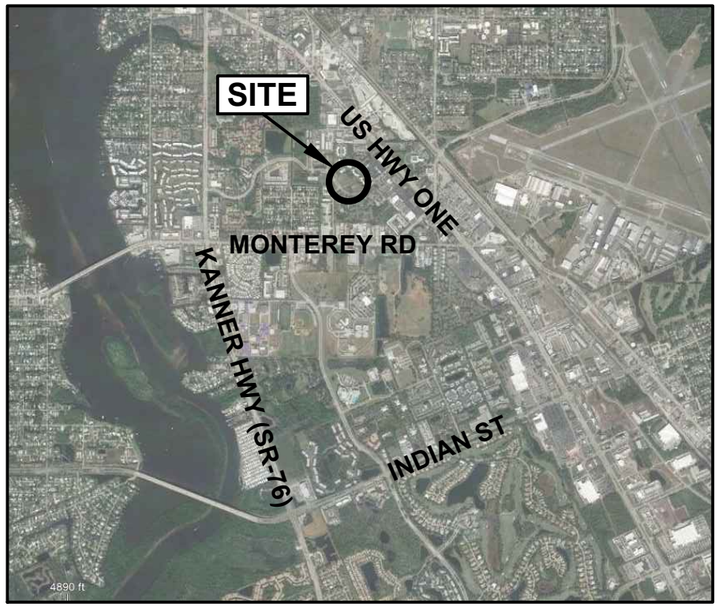
Sincerely,
ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

PETER GREGERS ANDERSEN ★ LICENSE No. 57956 ★ STATE OF FLORIDA PROFESSIONAL ENGINEER

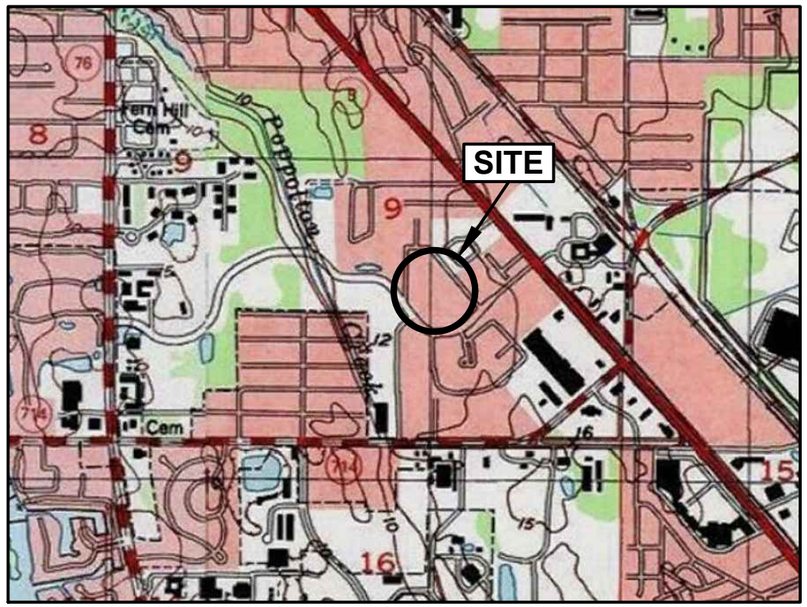
Peter G. Andersen, P.E.
Principal Engineer
Fla. Reg. No. 57956
7-19-21

David P. Andre, P.E.
Principal Engineer
Fla. Reg. No. 53969
7/19/21

2021 AERIAL PHOTOGRAPH



2003 USGS TOPOGRAPHIC QUADRANGLE MAP OF "ST. LUCIE INLET, FL"



USDA SOIL SURVEY MAP



PUBLIC LAND SURVEY SYSTEM

Section 9, Township 38 South, Range 41 East

MARTIN COUNTY PROPERTY APPRAISER

Parcel ID 09-38-41-011-000-0000-1 (4.88 acres)

USDA NRCS SOIL TYPE WITHIN SITE BOUNDARY

4: Waveland and Immokalee fine sands

NORTH

NOT TO SCALE

Graphical sources:
- Google Earth Pro
- QUADS/Earth Survey
- USDA NRCS Web Soil Survey

AACE

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

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SITE VICINITY MAPS

LIMITED SUBSURFACE SOIL EXPLORATION AND
PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION
751 SE CENTRAL PARKWAY
STUART, MARTIN COUNTY, FLORIDA

Drawn by: PGA	Date: July 2021
Checked by: DPA	Date: July 2021
AACE File No: 21-222	**Figure No. 1**



LEGEND

TB-# Standard Penetration Test Boring

Hand Auger Boring (HAB-#)

EX-# Exfiltration Test

NOTES

Shown and noted field work locations are approximate, and were located using the provided site plan, aerial photographs, existing site features, and a hand-held GPS instrument. Atmospheric disturbances, forest canopy cover, local weather conditions, etc. may affect the accuracy of the GPS instrument readings. The shown field work locations should be considered accurate only to the degree implied by the method of measurement used.

NORTH

NOT TO SCALE

Graphical sources:
- Google Earth Pro
- Conceptual Site Plan provided by Johnston Group

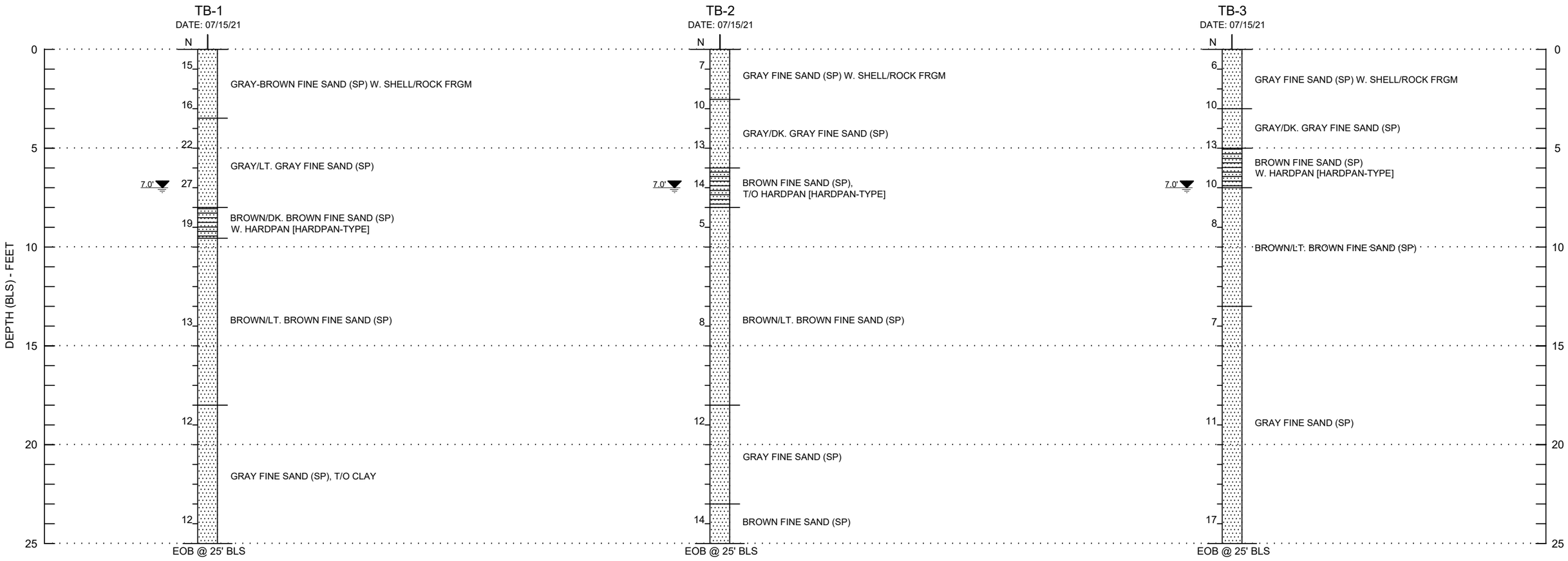


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FIELD WORK LOCATION PLAN

LIMITED SUBSURFACE SOIL EXPLORATION AND PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION
751 SEWELL'S POINT ROAD
STUART, MARTIN COUNTY, FLORIDA

Drawn by: PGA	Date: July 2021
Checked by: DPA	Date: July 2021
AACE File No: 21-220	**Figure No. 2**



SOIL GRAPHICAL LEGEND:

FINE SAND (SP)

FINE SAND (SP) WITH OR WITH TRACES OF HARDPAN [HARDPAN-TYPE SOILS]

NOTE: 3"-6" of topsoil (sands w. roots/organics) encountered in most borings (not shown on boring profiles)

DRILLING NOTES:

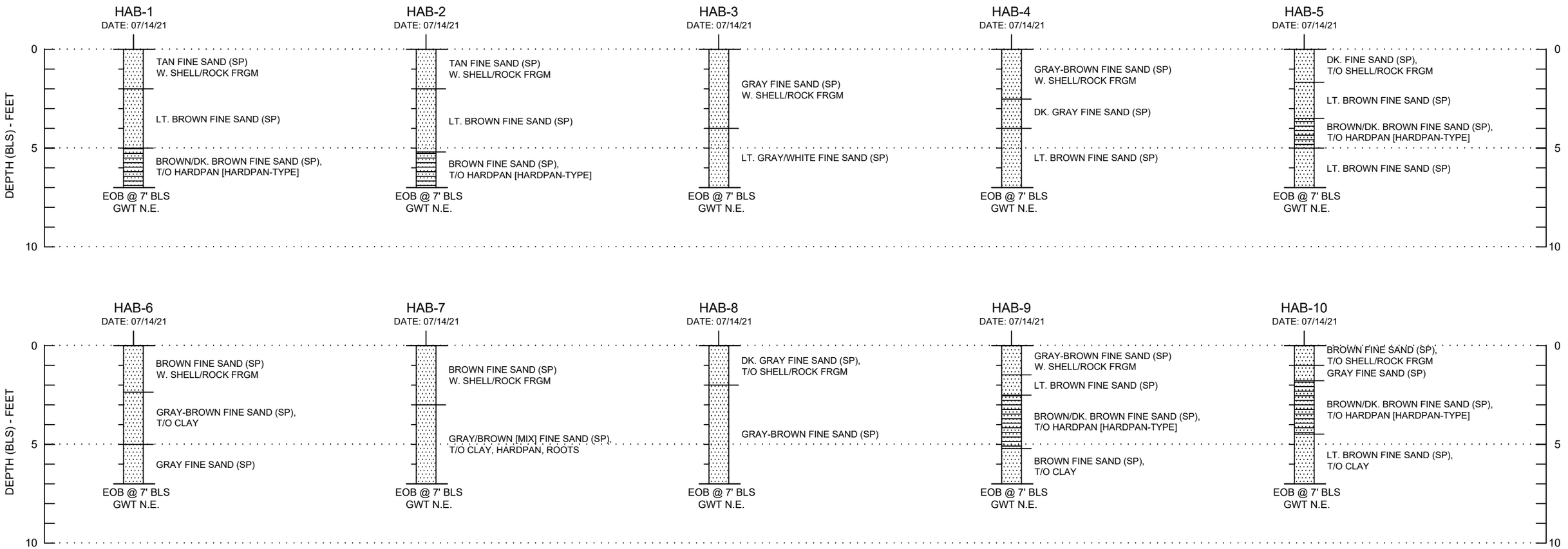
TB-#	STANDARD PENETRATION TEST [SPT] BORING (ASTM D1586)	DRILL CREW CHIEF: DB
N	SPT RESISTANCE IN BLOWS PER FOOT	DRILL RIG: CME-45
HAB-#	HAND AUGER BORING (ASTM D1452)	DRILLING METHOD: ROTARY-WASH/BENTONITE SLURRY
XX ▼	GROUNDWATER TABLE (FT-BLS) AT TIME OF DRILLING	CASING: NONE
GWT N.E.	GROUNDWATER TABLE NOT ENCOUNTERED	SPLIT-SPOON SAMPLER:
EOB	END OF BORING	LENGTH: 24"
BLS	BELOW LAND SURFACE	OUTSIDE DIAMETER: 2.0"
FRGM	FRAGMENTS	SPT HAMMER:
		AVERAGE DROP: 30"
SP	UNIFIED SOIL CLASSIFICATION SYSTEM [USCS]	WEIGHT: 140 LBS
	USCS GROUPS DETERMINED BY VISUAL CLASSIFICATION	TYPE: SAFETY/MANUAL
	EXCEPT FOR NOTED LABORATORY TESTS	
MC	NATURAL MOISTURE CONTENT IN PERCENT (ASTM D2216)	
-200	PERCENT FINES PASSING THE NO. 200 SIEVE (ASTM D1140)	

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
834 SW Swan Avenue, Port St. Lucie, FL 34983 772-807-9191 www.AACEinc.com

SOIL BORING PROFILES

LIMITED SUBSURFACE SOIL EXPLORATION AND PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION
751 SE CENTRAL PARKWAY
STUART, MARTIN COUNTY, FLORIDA

Drawn by: PGA	Date: July 2021
Checked by: DPA	Date: July 2021
AACE File No: 21-222	**Sheet No. 1**



SOIL GRAPHICAL LEGEND:

FINE SAND (SP)

FINE SAND (SP) WITH OR WITH TRACES OF HARDPAN [HARDPAN-TYPE SOILS]

NOTE: 3"-6" of topsoil (sands w. roots/organics) encountered in most borings (not shown on boring profiles)

DRILLING NOTES:

TB-#	STANDARD PENETRATION TEST [SPT] BORING (ASTM D1586)
N	SPT RESISTANCE IN BLOWS PER FOOT
HAB-#	HAND AUGER BORING (ASTM D1452)
XX ▼	GROUNDWATER TABLE (FT-BLS) AT TIME OF DRILLING
GWT N.E.	GROUNDWATER TABLE NOT ENCOUNTERED
EOB	END OF BORING
BLS	BELOW LAND SURFACE
FRGM	FRAGMENTS
SP	UNIFIED SOIL CLASSIFICATION SYSTEM [USCS] USCS GROUPS DETERMINED BY VISUAL CLASSIFICATION EXCEPT FOR NOTED LABORATORY TESTS
MC	NATURAL MOISTURE CONTENT IN PERCENT (ASTM D2216)
-200	PERCENT FINES PASSING THE NO. 200 SIEVE (ASTM D1140)

DRILL CREW CHIEF: DB
DRILL RIG: CME-45
DRILLING METHOD: ROTARY-WASH/BENTONITE SLURRY
CASING: NONE
SPLIT-SPOON SAMPLER:
- LENGTH: 24"
- OUTSIDE DIAMETER: 2.0"

SPT HAMMER:
- AVERAGE DROP: 30"
- WEIGHT: 140 LBS
- TYPE: SAFETY/MANUAL

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
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SOIL BORING PROFILES

LIMITED SUBSURFACE SOIL EXPLORATION AND PRELIMINARY GEOTECHNICAL ENGINEERING EVALUATION
751 SE CENTRAL PARKWAY
STUART, MARTIN COUNTY, FLORIDA

Drawn by: PGA	Date: July 2021
Checked by: DPA	Date: July 2021
AACE File No: 21-222	**Sheet No. 3**

APPENDIX I

USDA NRCS Web Soil Survey Summary Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

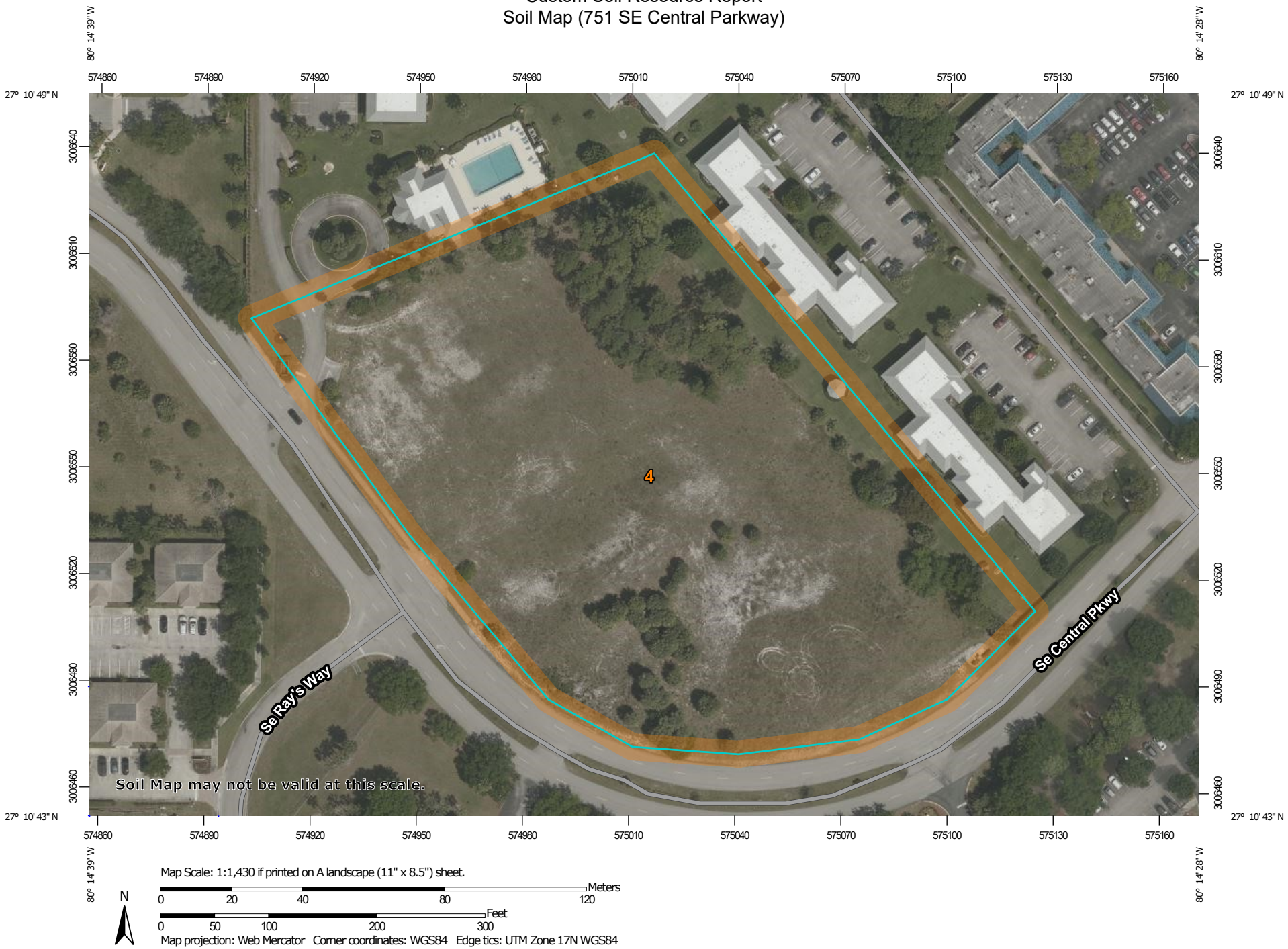
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Martin County, Florida

751 SE Central Parkway



Soil Map (751 SE Central Parkway)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Martin County, Florida
Survey Area Data: Version 19, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 8, 2019—Mar 28, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (751 SE Central Parkway)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Waveland and Immokalee fine sands	5.2	100.0%
Totals for Area of Interest		**5.2**	**100.0%**

Map Unit Descriptions (751 SE Central Parkway)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Martin County, Florida

4—Waveland and Immokalee fine sands

Map Unit Setting

National map unit symbol: 1jq7n
Elevation: 0 to 80 feet
Mean annual precipitation: 56 to 64 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Waveland and similar soils: 41 percent
Immokalee and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waveland

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
Eg - 4 to 43 inches: fine sand
Bh1 - 43 to 47 inches: fine sand
Bh2 - 47 to 77 inches: loamy fine sand
Cg1 - 77 to 91 inches: fine sand
Cg2 - 91 to 99 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 30 to 50 inches to ortstein
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R156BY003FL)
Hydric soil rating: No

Description of Immokalee

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 35 inches: fine sand
Bh - 35 to 54 inches: fine sand
BC - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R156BY003FL)
Hydric soil rating: No

Minor Components

Lawnwood

Percent of map unit: 4 percent
Landform: Marine terraces on flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R156BY003FL)
Hydric soil rating: No

Basinger

Percent of map unit: 4 percent

Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), Slough (R156BY011FL)
Hydric soil rating: Yes

Nettles

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R156BY003FL)
Hydric soil rating: No

Salerno

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R156BY003FL)
Hydric soil rating: No

Placid

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G156BC145FL), Freshwater Marshes and Ponds (R156BY010FL)
Hydric soil rating: Yes

Jonathan

Percent of map unit: 3 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G156BC121FL), South Florida Flatwoods (R156BY003FL)
Hydric soil rating: No

APPENDIX II

General Notes

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

SOIL BORING, SAMPLING AND TESTING METHODS

GENERAL

Andersen Andre Consulting Engineers, Inc. (AACE) borings describe subsurface conditions only at the locations drilled and at the time drilled. They provide no information about subsurface conditions below the bottom of the boreholes. At locations not explored, surface conditions that differ from those observed in the borings may exist and should be anticipated.

The information reported on our boring logs is based on our drillers' logs and on visual examination in our laboratory of disturbed soil samples recovered from the borings. The distinction shown on the logs between soil types is approximate only. The actual transition from one soil to another may be gradual and indistinct.

The groundwater depth shown on our boring logs is the water level the driller observed in the borehole when it was drilled. These water levels may have been influenced by the drilling procedures, especially in borings made by rotary drilling with bentonitic drilling mud. An accurate determination of groundwater level requires long-term observation of suitable monitoring wells. Fluctuations in groundwater levels throughout the year should be anticipated.

The absence of a groundwater level on certain logs indicates that no groundwater data is available. It does not mean that groundwater will not be encountered at that boring location at some other point in time.

STANDARD PENETRATION TEST

The Standard Penetration Test (SPT) is a widely accepted method of in situ testing of foundation soils (ASTM D-1586). A 2-foot (0.6m) long, 2-inch (50mm) O.D. split-barrell sampler attached to the end of a string of drilling rods is driven 24 inches (0.60m) into the ground by successive blows of a 140-pound (63.5 Kg) hammer freely dropping 30 inches (0.76m). The number of blows needed for each 6 inches (0.15m) increments penetration is recorded. The sum of the blows required for penetration of the middle two 6-inch (0.15m) increments of penetration constitutes the test result of N-value. After the test, the sampler is extracted from the ground and opened to allow visual description of the retained soil sample. The N-value has been empirically correlated with various soil properties allowing a conservative estimate of the behavior of soils under load. The following tables relate N-values to a qualitative description of soil density and, for cohesive soils, an approximate unconfined compressive strength (Qu):

Cohesionless Soils:	**N-Value**	**Description**
	0 to 4	Very loose
	4 to 10	Loose
	10 to 30	Medium dense
	30 to 50	Dense
	Above 50	Very dense

Cohesive Soils:	N-Value	Description	Qu
	0 to 2	Very soft	Below 0.25 tsf (25 kPa)
	2 to 4	Soft	0.25 to 0.50 tsf (25 to 50 kPa)
	4 to 8	Medium stiff	0.50 to 1.0 tsf (50 to 100 kPa)
	8 to 15	Stiff	1.0 to 2.0 tsf (100 to 200 kPa)
	15 to 30	Very stiff	2.0 to 4.0 tsf (200 to 400 kPa)
	Above 30	Hard	Above 4.0 tsf (400 kPa)

The tests are usually performed at 5 foot (1.5m) intervals. However, more frequent or continuous testing is done by AACE through depths where a more accurate definition of the soils is required. The test holes are advanced to the test elevations by rotary drilling with a cutting bit, using circulating fluid to remove the cuttings and hold the fine grains in suspension. The circulating fluid, which is bentonitic drilling mud, is also used to keep the hole open below the water table by maintaining an excess hydrostatic pressure inside the hole. In some soil deposits, particularly highly pervious ones, flush-coupled casing must be driven to just above the testing depth to keep the hole open and/or prevent the loss of circulating fluid. After completion of a test borings, the hole is kept open until a steady state groundwater level is recorded. The hole is then sealed by backfilling, either with accumulated cuttings or lean cement.

Representative split-spoon samples from each sampling interval and from different strata are brought to our laboratory in air-tight jars for classification and testing, if necessary. Afterwards, the samples are discarded unless prior arrangement have been made.

POWER AUGER BORINGS

Auger borings (ASTM D-1452) are used when a relatively large, continuous sampling of soil strata close to the ground surface is desired. A 4-inch (100 mm) diameter, continuous flight, helical auger with a cutting head at its end is screwed into the ground in 5-foot (1.5m) sections. It is powered by the rotary drill rig. The sample is recovered by withdrawing the auger our of the ground without rotating it. The soil sample so obtained, is classified in the field and representative samples placed in bags or jars and returned to the AACE soils laboratory for classification and testing, if necessary.

HAND AUGER BORINGS

Hand auger borings are used, if soil conditions are favorable, when the soil strata are to be determined within a shallow (approximately 5-foot [1.5m]) depth or when access is not available to power drilling equipment. A 3-inch (75mm) diameter hand bucket auger with a cutting head is simultaneously turned and pressed into the ground. The bucket auger is retrieved at approximately 6-inch (0.15m) interval and its contents emptied for inspection. On occasion post-hole diggers are used, especially in the upper 3 feet (1m) or so. Penetrometer probings can be used in the upper 5 feet (1.5m) to determine the relative density of the soils. The soil sample obtained is described and representative samples put in bags or jars and transported to the AACE soils laboratory for classification and testing, if necessary.

UNDISTURBED SAMPLING

Undisturbed sampling (ASTM D-1587) implies the recovery of soil samples in a state as close to their natural condition as possible. Complete preservation of in situ conditions cannot be realized; however, with careful handling and proper sampling techniques, disturbance during sampling can be minimized for most geotechnical engineering purposes. Testing of undisturbed samples gives a more accurate estimate of in situ behavior than is possible with disturbed samples.

Normally, we obtain undisturbed samples by pushing a 2.875-inch (73 mm) I.D., thin wall seamless steel tube 24 inches (0.6 m) into the soil with a single stoke of a hydraulic ram. The sampler, which is a Shelby tube, is 30 (0.8 m) inches long. After the sampler is retrieved, the ends are sealed in the field and it is transported to our laboratory for visual description and testing, as needed.

ROCK CORING

In case rock strata is encountered and rock strength/continuity/composition information is needed for foundation or mining purposes, the rock can be cored (ASTM D-2113) and 2-inch to 4-inch diameter rock core samples be obtained for further laboratory analyses. The rock coring is performed through flush-joint steel casing temporarily installed through the overburden soils above the rock formation and also installed into the rock. The double- or triple-tube core barrels are advanced into the rock typically in 5-foot intervals and then retrieved to the surface. The barrel is then opened so that the core sample can be extruded. Preliminary field measurements of the recovered rock cores include percent recovery and Rock Quality Designation (RQD) values. The rock cores are placed in secure core boxes and then transported to our laboratory for further inspection and testing, as needed.

SFWMD EXFILTRATION TESTS

In order to estimate the hydraulic conductivity of the upper soils, constant head or falling head exfiltration tests can be performed. These tests are performed in accordance with methods described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. In brief, a 6 to 9 inch diameter hole is augered to depths of about 5 to 7 feet; the bottom one foot is filled with 57-stone; and a 6-foot long slotted PVC pipe is lowered into the hole. The distance from the groundwater table and to the ground surface is recordedand the hole is then saturated for 10 minutes with the water level maintained at the ground surface.

If a constant head test is performed, the rate of pumping will be recorded at fixed intervals of 1 minute for a total of 10 minutes, following the saturation period.

LABORATORY TEST METHODS

Soil samples returned to the AACE soils laboratory are visually observed by a geotechnical engineer or a trained technician to obtain more accurate description of the soil strata. Laboratory testing is performed on selected samples as deemed necessary to aid in soil classification and to help define engineering properties of the soils. The test results are presented on the soil boring logs at the depths at which the respective sample was recovered, except that grain size distributions or selected other test results may be presented on separate tables, figures or plates as discussed in this report.

THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

The soil descriptions shown on the logs are based upon visual-manual procedures in accordance with local practice. Soil classification is performed in general accordance with the United Soil Classification System and is also based on visual-manual procedures.

BOULDERS (>12" [300 MM]) and COBBLES (3" [75 MM] TO 12" [300 MM]):

GRAVEL: Coarse Gravel: 3/4" (19 mm) to 3" (75 mm)
Fine Gravel: No. 4 (4.75 mm) Sieve to 3/4" (19 mm)

Descriptive adjectives:

0 - 5%	– no mention of gravel in description
5 - 15%	– trace
15 - 29%	– some
30 - 49%	– gravelly (shell, limerock, cemented sands)

SANDS:

COARSE SAND: No. 10 (2 mm) Sieve to No. 4 (4.75 mm) Sieve
MEDIUM SAND: No. 40 (425 µm) Sieve to No. 10 (2 mm) Sieve
FINE SAND: No. 200 (75 µm) Sieve to No. 40 (425 µm) Sieve

Descriptive adjectives:

0 - 5%	– no mention of sand in description
5 - 15%	– trace
15 - 29%	– some
30 - 49%	– sandy

SILT/CLAY: < #200 (75µM) Sieve

SILTY OR SILT: $PI < 4$
SILTY CLAYEY OR SILTY CLAY: $4 \leq PI \leq 7$
CLAYEY OR CLAY: $PI > 7$

Descriptive adjectives:

< - 5%	– clean (no mention of silt or clay in description)
5 - 15%	– slightly
16 - 35%	– clayey, silty, or silty clayey
36 - 49%	– very

ORGANIC SOILS:

Organic Content	**Descriptive Adjectives**	**Classification**
0 - 2.5%	Usually no mention of organics in description	See Above
2.6 - 5%	slightly organic	add “with organic fines” to group name
5 - 30%	organic	SM with organic fines
		Organic Silt (OL)
		Organic Clay (OL)
		Organic Silt (OH)

Organic Clay (OH)

HIGHLY ORGANIC SOILS AND MATTER:

Organic Content	**Descriptive Adjectives**	**Classification**
30 - 75%	sandy peat	Peat (PT)
	silty peat	Peat (PT)
> 75%	amorphous peat	Peat (PT)
	fibrous peat	Peat (PT)

STRATIFICATION AND STRUCTURE:

Descriptive Term		**Thickness**
with interbedded		
seam	--	less than ½ inch (13 mm) thick
layer	--	½ to 12-inches (300 mm) thick
stratum	--	more than 12-inches (300 mm) thick
pocket	--	small, erratic deposit, usually less than 1-foot
lens	--	lenticular deposits
occasional	--	one or less per foot of thickness
frequent	--	more than one per foot of thickness
calcareous	--	containing calcium carbonate (reaction to diluted HCL)
hardpan	--	spodic horizon usually medium dense
marl	--	mixture of carbonate clays, silts, shells and sands

ROCK CLASSIFICATION (FLORIDA) CHART:

Symbol	Typical Description
LS	Hard Bedded Limestone or Caprock
WLS	Fractured or Weathered Limestone
LR	Limerock (gravel, sand, silt and clay mixture)
SLS	Stratified Limestone and Soils

THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

LEGEND FOR BORING LOGS

N:	Number of blows to drive a 2-inch OD split spoon sampler 12 inches using a 140-pound hammer dropped 30 inches
R:	Refusal (less than six inches advance of the split spoon after 50 hammer blows)
MC:	Moisture content (percent of dry weight)
OC:	Organic content (percent of dry weight)
PL:	Moisture content at the plastic limit
LL:	Moisture content at the liquid limit
PI:	Plasticity index (LL-PL)
qu:	Unconfined compressive strength (tons per square foot, unless otherwise noted)
-200:	Percent passing a No. 200 sieve (200 wash)
+40:	Percent retained above a No. 40 sieve
US:	Undisturbed sample obtained with a thin-wall Shelby tube
k:	Permeability (feet per minute, unless otherwise noted)
DD:	Dry density (pounds per cubic foot)
TW:	Total unit weight (pounds per cubic foot)

APPENDIX III

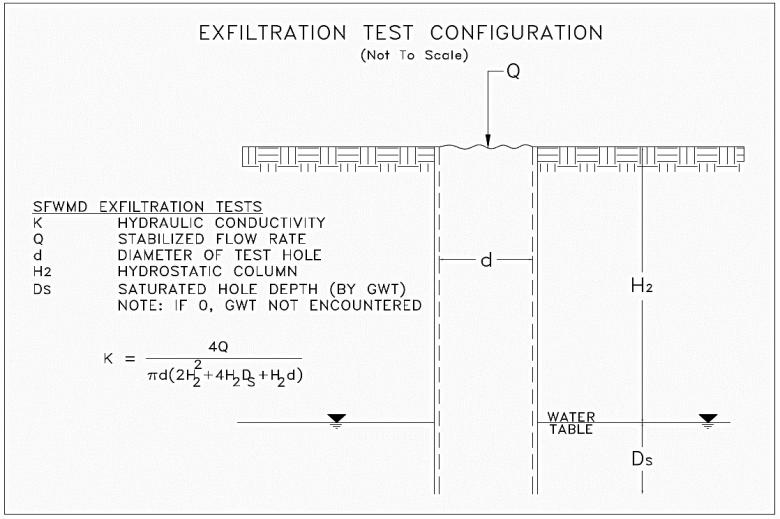
Soil Hydraulic Conductivity Test Reports

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

SFWMD Usual Open Hole Test

Test Number	**EX-1**	**Project Name**	**751 SE Central Parkway**	**Weather Conditions**	Overcast
		Project Number	**21-222**	**Temperature**	87F
		Test Location	**Refer to Figure No. 2**	**Technician**	RL/MM
		Date	**07/16/2021**	**Engineer**	PA

DIAMETER OF TEST HOLE (FEET): **d** =	0.5	
DEPTH OF TEST HOLE (FEET): H_1 =	6	
DEPTH TO WATER TABLE (FEET): H_2 =	6	(+)
SATURATED HOLE DEPTH (FEET): D_s =	0	
METER READING (Gallons): V_i =	0	@ 0.00 MIN
METER READING (Gallons): V_F =	91	@ 10.00 MIN
AVERAGE FLOW RATE (GPM) =	9.10	
"STABILIZED" FLOW RATE (CFS): Q =	**2.0E-02**	
HYDRAULIC CONDUCTIVITY (CFS / FT^2 - FT. HEAD): K =	**6.9E-04**	



Soil Profile	
Depth (in-bls)	**Description**
0 - 24	Light brown fine sand (SP) w. shell/rock fragments
24 - 65	Gray-brown fine sand (SP)
65 - 72	Dark brown fine sand (SP) w. hardpan [hardpan-type]
Groundwater not encountered	

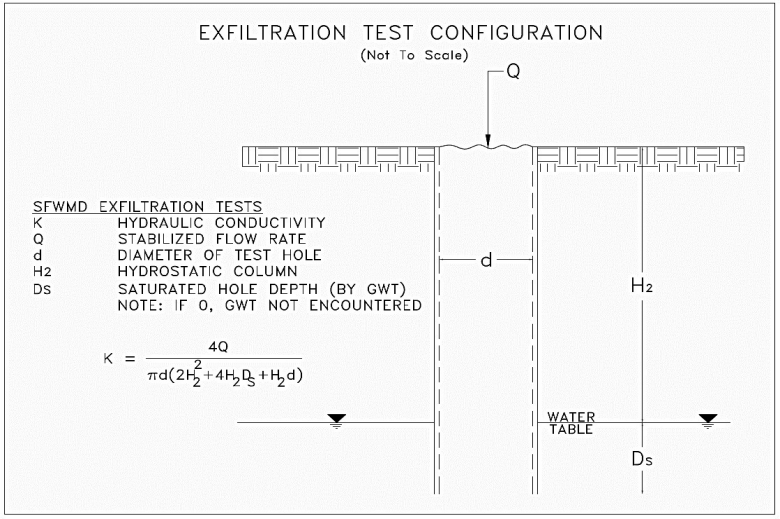
NOTES:
The hydraulic conductivity test was performed in general accordance with the methods described in the South Florida Water Management District (SFWMD) Environmental Resource Permit Information Manual (Volume IV).
The K-value was calculated based on the exfiltration test procedure as shown hereon.
The presented hydraulic conductivity (K) value is applicable for an exfiltration trench installed at the same depth as the borehole test. The K-value represents an ultimate value. The designer should decide on the required factor of safety (minimum of 2, per SFWMD).

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

SFWMD Usual Open Hole Test

Test Number	**EX-2**	**Project Name**	**751 SE Central Parkway**	**Weather Conditions**	Overcast
		Project Number	**21-222**	**Temperature**	87F
		Test Location	**Refer to Figure No. 2**	**Technician**	RL/MM
		Date	**07/16/2021**	**Engineer**	PA

DIAMETER OF TEST HOLE (FEET): **d** =	0.5	
DEPTH OF TEST HOLE (FEET): H_1 =	6	
DEPTH TO WATER TABLE (FEET): H_2 =	6	(+)
SATURATED HOLE DEPTH (FEET): D_s =	0	
METER READING (Gallons): V_i =	0	@ 0.00 MIN
METER READING (Gallons): V_F =	59	@ 10.00 MIN
AVERAGE FLOW RATE (GPM) =	5.90	
"STABILIZED" FLOW RATE (CFS): Q =	**1.3E-02**	
HYDRAULIC CONDUCTIVITY (CFS / FT^2 - FT. HEAD): K =	**4.5E-04**	



Soil Profile	
Depth (in-bls)	**Description**
0 - 20	Light brown fine sand (SP), t/o shell/rock fragments
20 - 44	Gray fine sand (SP)
44 - 60	Dark brown fine sand (SP) w. hardpan [hardpan-type]
60 - 72	Tan fine sand (SP)
Groundwater not encountered	

NOTES:

The hydraulic conductivity test was performed in general accordance with the methods described in the South Florida Water Management District (SFWMD) Environmental Resource Permit Information Manual (Volume IV).

The K-value was calculated based on the exfiltration test procedure as shown hereon.

The presented hydraulic conductivity (K) value is applicable for an exfiltration trench installed at the same depth as the borehole test. The K-value represents an ultimate value. The designer should decide on the required factor of safety (minimum of 2, per SFWMD).

APPENDIX IV

AACE Project Limitations and Conditions

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

Project Limitations and Conditions

Andersen Andre Consulting Engineers, Inc. has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made herein. Further, the report, in all cases, is subject to the following limitations and conditions:

VARIABLE/UNANTICIPATED SUBSURFACE CONDITIONS

The engineering analysis, evaluation and subsequent recommendations presented herein are based on the data obtained from our field explorations, at the specific locations explored on the dates indicated in the report. This report does not reflect any subsurface variations (e.g. soil types, groundwater levels, etc.) which may occur adjacent or between borings.

The nature and extent of any such variations may not become evident until construction/excavation commences. In the event such variations are encountered, Andersen Andre Consulting Engineers, Inc. may find it necessary to (1) perform additional subsurface explorations, (2) conduct in-the-field observations of encountered variations, and/or re-evaluate the conclusions and recommendations presented herein.

We at Andersen Andre Consulting Engineers, Inc. recommend that the project specifications necessitate the contractor immediately notifying Andersen Andre Consulting Engineers, Inc., the owner and the design engineer (if applicable) if subsurface conditions are encountered that are different from those presented in this report.

No claim by the contractor for any conditions differing from those expected in the plans and specifications, or presented in this report, should be allowed unless the contractor notifies the owner and Andersen Andre Consulting Engineers, Inc. of such differing site conditions. Additionally, we recommend that all foundation work and site improvements be observed by a Andersen Andre Consulting Engineers, Inc. representative.

SOIL STRATA CHANGES

Soil strata changes are indicated by a horizontal line on the soil boring profiles (boring logs) presented within this report. However, the actual strata change may be more gradual and indistinct. Where changes occur between soil samples, the locations of the changes must be estimated using the available information and may not be at the exact depth indicated.

SINKHOLE POTENTIAL

Unless specifically requested in writing, a subsurface exploration performed by Andersen Andre Consulting Engineers, Inc. Is not intended to be an evaluation for sinkhole potential.

MISINTERPRETATION OF SUBSURFACE SOIL EXPLORATION REPORT

Andersen Andre Consulting Engineers, Inc. is responsible for the conclusions and recommendations presented herein, based upon the subsurface data obtained during this project. If others render conclusions or opinions, or make recommendations based upon the data presented in this report, those conclusions, opinions and/or recommendations are not the responsibility of Andersen Andre Consulting Engineers, Inc.

CHANGED STRUCTURE OR LOCATION

This report was prepared to assist the owner, architect and/or civil engineer in the design of the subject project. If any changes in the construction, design and/or location of the structures as discussed in this report are planned, or if any structures are included or added that are not discussed in this report, the conclusions and recommendations contained in this report may not be valid. All such changes in the project plans should be made known to Andersen Andre Consulting Engineers, Inc. for our subsequent re-evaluation.

USE OF REPORT BY BIDDERS

Bidders who are reviewing this report prior to submission of a bid are cautioned that this report was prepared to assist the owners and project designers. Bidders should coordinate their own subsurface explorations (e.g.; soil borings, test pits, etc.) for the purpose of determining any conditions that may affect construction operations. Andersen Andre Consulting Engineers, Inc. cannot be held responsible for any interpretations made using this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which may affect construction operations.

IN-THE-FIELD OBSERVATIONS

Andersen Andre Consulting Engineers, Inc. attempts to identify subsurface conditions, including soil stratigraphy, water levels, zones of lost circulation, “hard” or “soft” drilling, subsurface obstructions, etc. However, lack of mention in the report does not preclude the presence of such conditions.

LOCATION OF BURIED OBJECTS

Users of this report are cautioned that there was no requirement for Andersen Andre Consulting Engineers, Inc. to attempt to locate any man-made, underground objects during the course of this exploration, and that no attempts to locate any such objects were performed. Andersen Andre Consulting Engineers, Inc. cannot be responsible for any buried man-made objects which are subsequently encountered during construction.

PASSAGE OF TIME

This report reflects subsurface conditions that were encountered at the time/date indicated in the report. Significant changes can occur at the site during the passage of time. The user of the report recognizes the inherent risk in using the information presented herein after a reasonable amount of time has passed. We recommend the user of the report contact Andersen Andre Consulting Engineers, Inc. with any questions or concerns regarding this issue.

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

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IIGER03135.0MRP

Appendix E: Supporting Drainage Report

MATHERS ENGINEERING
CORPORATION

2431 SE Dixie Highway
Stuart, FL 34996
Phone: (772) 287-0525
Fax: (772) 220-8686

Drainage Report

Towne Park Professional Center

December 2007
Revised September 2008

For: **City of Stuart / South Florida Water Management District**
Stormwater Management Review

_____
Date

William J. Mathers, P.E.
Florida License 19658

Table of Contents

I. Drainage Summary
II. Field test results
III. Technical Analysis with exhibits

Drainage Summary

Drainage Summary

Key Points:

- Consistent with the original Towne Park North design, the Professional Center site will receive pass-through flows from the Condominiums.
- Based on the McCreary Offices SFWMD Permit No. 43-00600-S, Application No. 900626-8, allowable discharge for Towne Park North is ±4 cfs.
- Offsite receiving body stage information for 10 yr – 1 day and 25 yr – 3 day events based on McCreary Office tailwater stages.
- The 100 year- 3 day storm event was analyzed without discharge to the Towne Park system.
- 860 LF of exfiltration trench required to store 2" over the entire site. 908 LF of trench provided.
- The soil boring by GFA indicates a depth to water table of 4.5 ft during the dry season (8.0' NGVD). Estimated wet season water table is at el 10.0' NGVD.

Results:

Pre-Development 25 yr - 3 day storm event:
North Condominium Basin 14.80 NGVD
Professional Center Basin 14.99 NGVD

Post Development 10 yr - 1 day storm flood stage:
North Condominium Basin 14.02 NGVD
Professional Center Basin 14.09 NGVD
Minimum proposed parking elevation is elevation 15.00 NGVD

Post Development 25 yr - 3 day storm flood stage:
North Condominium Basin 14.64 NGVD
Professional Center Basin 14.67 NGVD
Discharge 3.24 cfs (0.24 cfs/acre) < 4 cfs allowable
Proposed site berm is at elevation 15.50 NGVD

Post Development 100 yr - 3 day storm flood stage:
Professional Center Basin 15.87 NGVD
Proposed building FFE elevation is 16.00 NGVD

Field Test Results

June 4, 2008

Mr. Michael DiEgidio
MJD Construction, Inc.
3456 SW Deggeller Court
Palm City, Florida 34990

Reference: Report of Hydraulic Conductivity Field Test
Proposed Townpark Professional Center
Stuart, Martin County, Florida
GFA Project No.: 08-0418

Dear Mr. DiEgidio:

As requested, GFA International completed one hydraulic conductivity test at the referenced site on May 27, 2008. The test was performed near an existing ditch/swale area. The table below presents the results of our field tests:

Location	Depth to Groundwater level (ft)	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (cfs/ft^2)	Hydraulic Conductivity (ft/day)
EX-1 150'EX10'N from the Site's Driveway Entrance	3.6	5.14 E-03	1.68 E-04	14.5

GFA appreciated the opportunity to be of service to you and if you have any questions, please don't hesitate to call our office at 772-489-9989.

Mario C. Fuquene, P.E.
Registered Engineer #60583
State of Florida

USUAL OPEN - HOLE TEST EVALUATION
SOUTH FLORIDA WATER MANAGEMENT METHOD

Client:	MJD Contractors	Test No.:	EX-1	Date:	05/27/08
Project:	Town Park Professional Center	Well Depth:	3.6 Feet	Analyst:	Mario C. Fuquene
Job No.:	08-0418	Location:	150' East of Driveway Entrance		

Water Level	Hole Depth	Ds	t1	t2	H1	H2	K
3.6	5.7	2.1	0.0	60.0	3.6	2.350	0.000115
3.6	5.7	2.1	0.0	60.0	2.4	1.433	0.000169

Equation for K Value: $\frac{d*Ln(H1/H2)}{(2H1+2H2+4Ds + d)*(t2 - t1)}$

Where: k = **1.685E-04** cfs/ft^2 Hydraulic conductivity (**5.14E-03** cm/sec)
d = **0.33** ft Diameter of tests hole
K = **14.5593893** ft/day

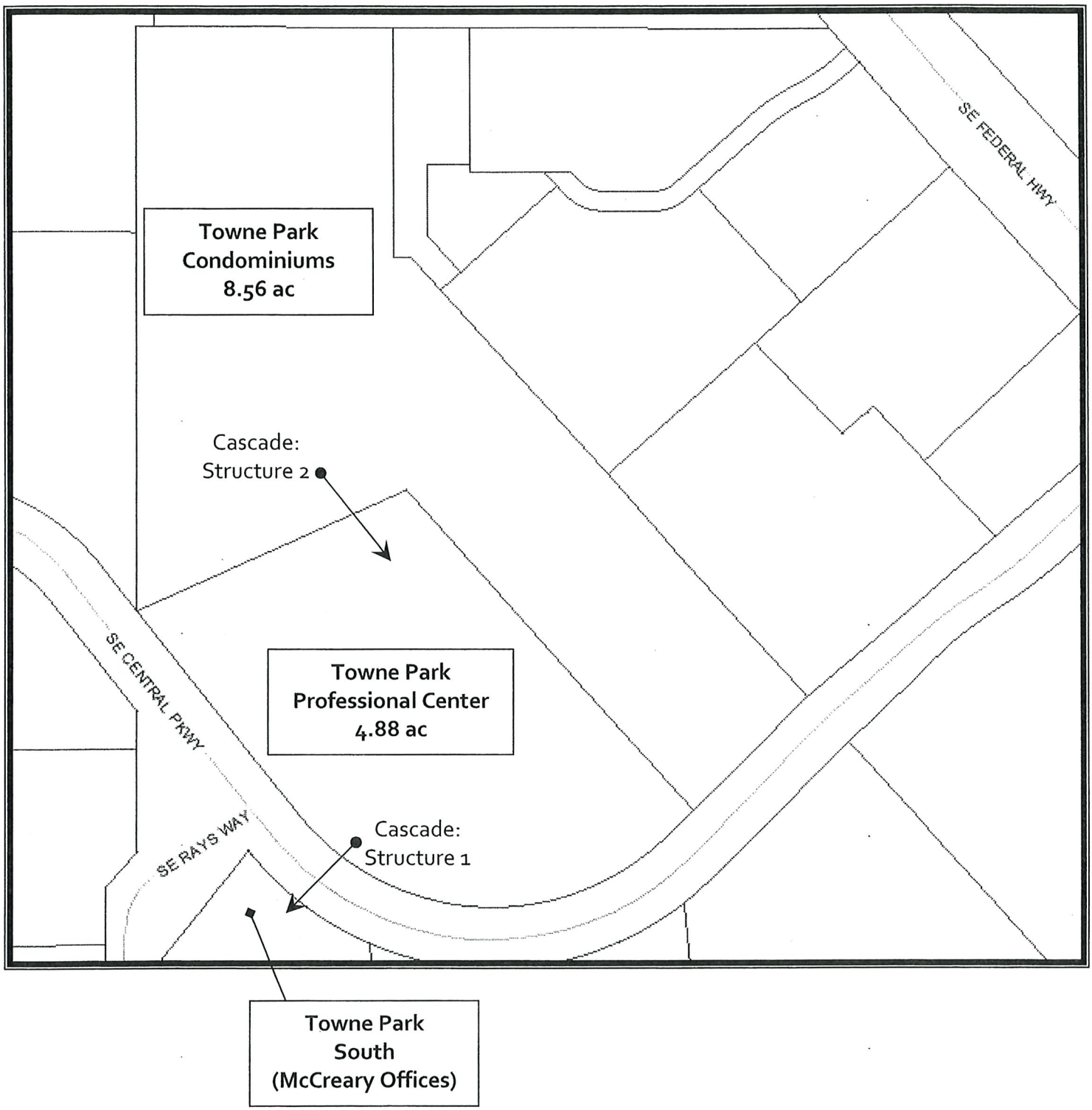
Soil profile:	EX-1
0.0 - 2"	Dk. Brown SAND, trace roots & Shells
2" - 8"	Lt. Brown m-f SAND, tr Shells
8" - 1.7'	Tan m-f SAND, trace Shells
1.7' - 2.6'	Black Peat
2.6' - 3.8'	Black to gray f-m SAND
3.8' - 5.7'	Tan to Dk. Brown f-m SAND, trace silt

MATHERS ENGINEERING
CORPORATION

2431 SE Dixie Hwy.
Stuart, FL 34996
Phone: (561) 287-0525
Fax: (561) 220-8686

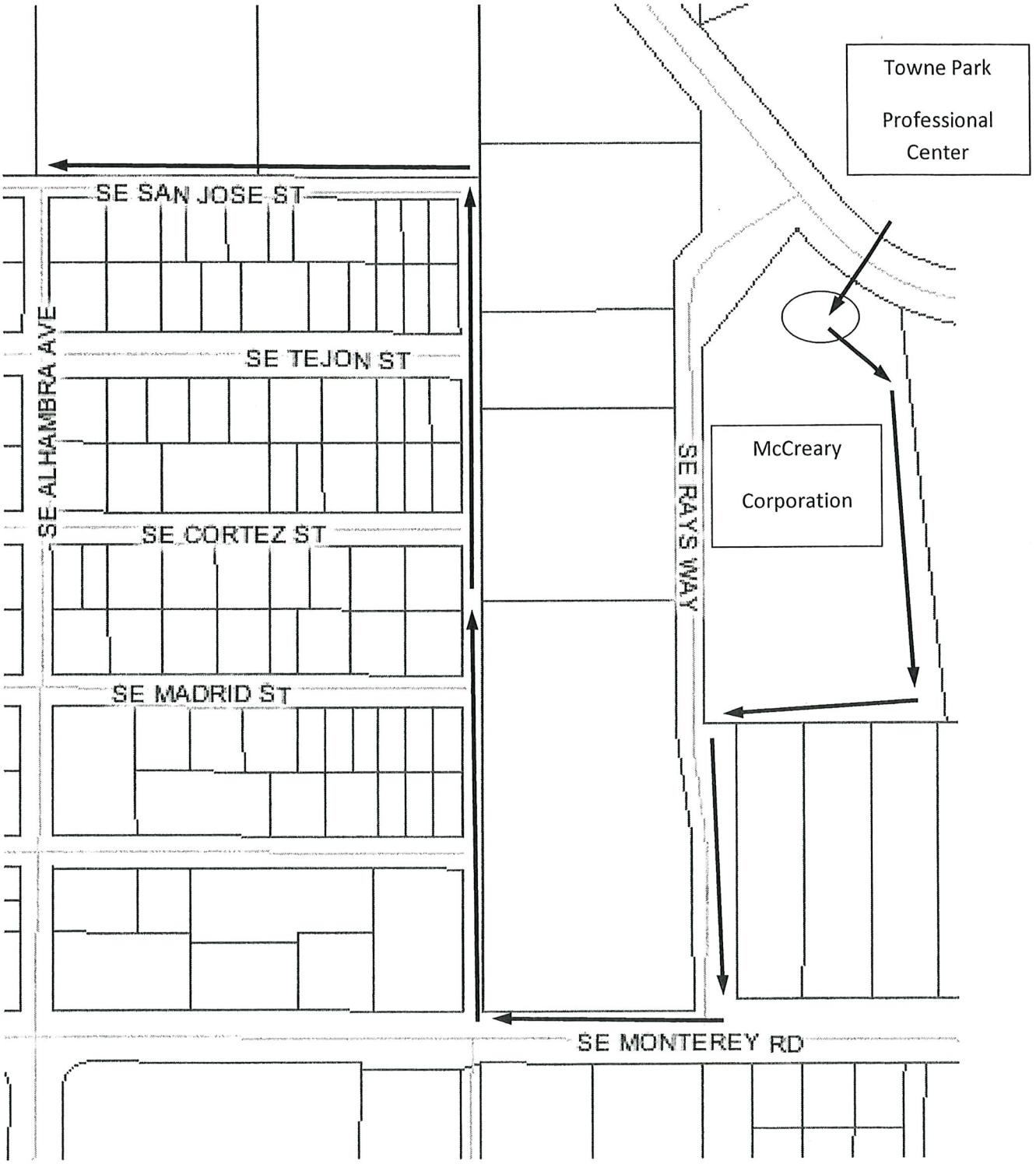
Technical Analysis

Master Drainage Exhibit



Drainage Exhibit:

Poppleton Creek Flow Path



Runoff Volume Recovery

Retention Size:

Retention Area	**29910** sf		

Abstraction Volume:

Max Retenion Vol (see Stage-Storage)	2.71 ac-ft	=	118048 cf
Saturated Soil Depth	1 ft		
Saturated Soil Volume	29910 cf		
Void Ratio	15 %		
Void Volume	4487 cf		
Total =	**122534** cf		

Permeability Coefficient (k):

Maximum Drawdown Time	12 days
Abstraction Rate	10211 cf/day
Minimum Permeability Coefficient (k)	**0.3** ft/day

Factor of Safety:

Ex-1 Average Permiability (k) see A & M soils report	14.5 ft/day
FS =	**42.47**

I. Introduction

The proposed development site is located on SE Central Parkway opposite SE Rays Way. Currently a church/worship area exists on site. Site serves as a means of conveyance of stormwater from the Towne Park North Condominium south to the Central Parkway swale as part of the Towne Park master drainage system.

The site's soil classification is Waveland sand (4) Sand with a 10" depth to the wet season water table, as referenced in the "Soil Survey of Martin County" by Soil and Water Conservation District. The development in the area has reduced the Season High Water Table.

The soil boring by GFA indicates a depth to water table of 4.5 ft during the dry season (8.0' NGVD). Estimated wet season water table is at el 10.0' NGVD.

The project will consist of 212,720 sf or 4.88 ac parcel containing a proposed (7) buildings with a proposed total 42,000 sf building footprint.

II. Design Criterion:

- 10 yr - 1 day storm = 7" of rainfall (for parking elevation)
- 25 yr - 3 day storm = 11" of rainfall (for berm elevation/dischage)
- 100 yr - 3 day storm = 15" of rainfall (for building FFE)
- SFWMD Water Quality
- Pre-treatment

Towne Park Condominiums
(Off-Site Contributing Drainage)

III. Calculations:

A. Towne Park Condos (Offsite contributing Drainage):

1. Site Data:

Total Area: $Total_Area := 8.589 acre$

Impervious Area:

Building Area	$B := 61200 ft^2$
Pavement Area	$Pa := 110630 ft^2$
Sidewalk/Conc pad Area	$Sa := 1330 ft^2$
Lake Area	$La := 0 ft^2$
Total Impervious	$Imperv := B + Pa + Sa$

Pervious Area: $Perv := Total_Area - Imperv$

$Perv = 200976.84\ ft^2$

Percent Pervious: $\%Perv := \frac{Perv}{Total_Area}$ $\%Perv = 53.72\%$

2. Soil Storage:

Depth to W.T.	Coastal Stor (in.)	Devel. Avail (in.) 75%	Flatwood Stor (in.)	Devel. Avail (in.) 75%	Depressional Stor (in.)	Devel. Avail (in.) 75%
1'	0.6	0.45	0.6	0.45	0.6	0.45
2'	2.5	1.88	2.5	1.88	2.1	1.58
3'	6.6	4.95	5.4	4.05	4.4	3.30
4'	10.9	8.18	9	6.75	6.8	5.10
5'	14.65	10.99	12.18	9.14		0.00
6'	19.6	14.70	16.27	12.20		0.00
Developed Available Storage is Calculated @ 75% of the Type of Storage						
I.E. (Coastal, Flatwoods, Depressional, etc...)						
For 5' and 6' depth to water, please see attached letter from SFWMD						
for verification of use of depths greater than 4' deep.						

$S := 4.05 \cdot in$ $Sw := S \cdot \%Perv$ $Sw = 2.18\ in$

3. Stage Storage:

Elevation	Retention/Pavement		Pipe	Total
	Area	Volume	Volume	Volume
NGVD	sf	ac-ft	cf	ac-ft
13	65005	0.00	0	0.00
14	167150	2.66	0	2.66
15	379811	8.94	0	8.94
15.5	396925	13.40	0	13.40

4. Pre - Treatment Calculations:

First 1/2" of runoff: $R := .5 \cdot in \cdot T$ $R = 0.36\,acre \cdot ft$

5. SFWMD Water Quality

Criteria 1: First 1" of runoff:

First 1" of runoff: $R := 1 \cdot in \cdot T$ $R = 0.72\,acre \cdot ft$

For Dry Detention x 75% $R1b := R \cdot 75\%$ $R1b = 0.54\,acre \cdot ft$

Dry Retention 50% credit: $R1c := R \cdot 50\%$ $R1c = 0.36\,acre \cdot ft$

$$14 - \frac{(14 - 13) \cdot (2.66 \cdot acre \cdot ft - R1b)}{2.66 acre \cdot ft - 0.00 \cdot acre \cdot ft} = 13.2$$ **= SFWMD Water Quality Stage**

Criteria 2: 2.5" x % Impervious:

a. Site Area, for Water Quality Pervious / Impervious Calculations Only

$Site_Area := T - (La + B)$ $Site_Area = 312936.84\,ft^2$ $Site_Area = 7.18\,acre$

b. Impervious Area, for Water Quality pervious / Impervious Calculations Only
= (Site Area for Water Quality Pervious / Impervious) - Pervious

$Iq := Site_Area - Perv$ $Iq = 111960\,ft^2$ $Iq = 2.57\,acre$

$$Percentage_Imp := \frac{Iq}{Site_Area}$$ $Percentage_Imp = 0.36$

c. For 2.5 inches x Percentage Impervious

$Treated := 2.5 \cdot in \cdot Percentage_Imp$ $Treated = 0.89\,in$

d. Compute Volume Required for Quality Detention as Per SFWMD

$R1 := Treated \cdot (T - La)$ $R1 = 0.64\,acre \cdot ft$

Pre-Development
Towne Park Professional
(On-Site)

B. Pre-developed Towne Park Prof. Site (Onsite):

1. Site Data:

Total Area: $Total_Area := 212720 \cdot ft^2$ $Total_Area = 4.88\ acre$

Impervious Area:

Building Area $B := 9748 ft^2$

Pavement Area $Pa := 18274 ft^2$

Sidewalk/Conc pad Area $Sa := 2233 ft^2$

Total Impervious $Imperv := B + Pa + Sa$

Pervious Area: $Perv := Total_Area - Imperv$

$Perv = 182465\ ft^2$

Percent Pervious: $\%Perv := \frac{Perv}{Total_Area}$ $\%Perv = 85.78\%$

2. Soil Storage:

Depth to W.T.	Coastal Stor (in.)	Devel. Avail (in.) 75%	Flatwood Stor (in.)	Devel. Avail (in.) 75%	Depressional Stor (in.)	Devel. Avail (in.) 75%
1'	0.6	0.45	0.6	0.45	0.6	0.45
2'	2.5	1.88	2.5	1.88	2.1	1.58
3'	6.6	4.95	5.4	4.05	4.4	3.30
4'	10.9	8.18	9	6.75	6.8	5.10
5'	14.65	10.99	12.18	9.14		0.00
6'	19.6	14.70	16.27	12.20		0.00
Developed Available Storage is Calculated @ 75% of the Type of Storage						
I.E. (Coastal, Flatwoods, Depressional, etc...)						
For 5' and 6' depth to water, please see attached letter from SFWMD						
for verification of use of depths greater than 4' deep.						

$S := 4.05 \cdot in$ $Sw := S \cdot \%Perv$ $Sw = 3.47\ in$

3. Stage Storage:

Elevation	Retention/Pavement		Pipe	Total
	Area	Volume	Volume	Volume
NGVD	sf	ac-ft	cf	ac-ft
13	14000	0.00	0	0.00
14	14000	0.32	0	0.32
15	107000	1.71	0	1.71
15.5	200000	3.47	0	3.47

4. Estimated Runoff Volume:

25 yr - 3 day rainfall depth $P := 11.0 \cdot in$

$$Qpre := \left[\frac{(P - .2 \cdot Sw)^2}{P + .8 \cdot Sw} \right] \qquad Qpre = 7.71\ in$$

$Vol_pre := Qpre \cdot Total_Area$ $\qquad Vol_pre = 3.14\ acre \cdot ft$

Post-Development Towne Park Professional (On-Site)

C. Developed Towne Park Prof. Site (Onsite):

1. Site Data:

Total Area $T := Total_Area$ $T = 4.88\ acre$

Impervious Area

Building Area $B := 42000 \cdot ft^2$ $B = 0.96\ acre$

Pavement Area $Pa := (59723) \cdot ft^2$

Sidewalk, Conc pad, Area $Sa := (17210) \cdot ft^2$

Lake Area $La := 0ft^2$

Preserve Area $Preserve := 0ft^2$

Wetland Area $Wetland := 0ft^2$

Total Impervious Area $I := B + Pa + Sa$

$I = 2.73\ acre$ $I = 2.73\ acre$ $\frac{I}{T} = 55.91\%$

Pervious Area:

Total Area - Impervious Area = Total Pervious Area

$Perv := T - I$ $Perv = 93787\ ft^2$

Percent Pervious: $\%Perv := \frac{Perv}{T}$ $\%Perv = 44.09\%$

2. Soil Storage:

Land Use	Area (sf)	Grade (ft-NGVD)	Area x Grade
Building	42000	16	672000
Pavement / Drive	59723	15.2	907789.6
Sidewalk	17210	15.5	266755
Dry Detention / Swale	39000	12	468000
Pervious (Not Dry Detention)	54787	15	821805
			3136349.6
Total Site Area	212720		
Weighted Site Grade		14.74	

Depth to W.T.	Coastal Stor (in.)	Devel. Avail (in.) 75%	Flatwood Stor (in.)	Devel. Avail (in.) 75%	Depressional Stor (in.)	Devel. Avail (in.) 75%
1'	0.6	0.45	0.6	0.45	0.6	0.45
2'	2.5	1.88	2.5	1.88	2.1	1.58
3'	6.6	4.95	5.4	4.05	4.4	3.30
4'	10.9	8.18	9	6.75	6.8	5.10
5'	14.65	10.99	12.18	9.14		0.00
6'	19.6	14.70	16.27	12.20		0.00
Developed Available Storage is Calculated @ 75% of the Type of Storage						
I.E. (Coastal, Flatwoods, Depressional, etc...)						
For 5' and 6' depth to water, please see attached letter from SFWMD						
for verification of use of depths greater than 4' deep.						

$S := 6.75 \cdot in$ $Sw := S \cdot \%Perv$ $Sw = 2.98\ in$

3. Stage Storage

Tree Area

Average Tree Size: $TreeDiam := 24in$

$$TreeA := 3.14 \cdot \left(\frac{TreeDiam}{2}\right)^2$$

$Trees := 28$ $TotalTreeArea := TreeA \cdot Trees$

$TotalTreeArea = 87.92\ ft^2$ Approx 90sf

Dry-Detention Area @ EL 11 $14000ft^2 - 90ft^2 = 13910\ ft^2$

Dry-Detention Area @ EL 15 $30000ft^2 - 90ft^2 = 29910\ ft^2$

Elevation	Dry-Detention		Pavement		Swale		Pipe	Total
	Area	Volume	Area	Volume	Area	Volume	Volume	Volume
NGVD	sf	ac-ft	sf	ac-ft	sf	ac-ft	cf	ac-ft
10.9	0	0.00	0	0.00	0	0.00	0	0.00
11	13910	0.02	0	0.00	0	0.00	0	0.02
12	17910	0.38	0	0.00	0	0.00	0	0.38
13	21910	0.84	0	0.00	0	0.00	0	0.84
14	25910	1.39	0	0.00	0	0.00	0	1.39
15	29910	2.03	27464	0.32	0	0.00	0	2.34
15.5	29910	2.37	59723	0.82	9000	0.05	0	3.24
16	29910	2.71	59723	1.50	9000	0.15	0	4.37

4. Pre - Treatment Calculations:

First 1/2" of runoff: $R := .5 \cdot in \cdot T$ $R = 0.2\,acre \cdot ft$

5. SFWMD Water Quality

Criteria 1: First 1" of runoff:

First 1" of runoff: $R := 1 \cdot in \cdot T$ $R = 0.41\,acre \cdot ft$

Criteria 2: 2.5" x % Impervious:

a. Site Area, for Water Quality Pervious / Impervious Calculations Only

$Site_Area := T - (La + B)$ $Site_Area = 170720\,ft^2$ $Site_Area = 3.92\,acre$

b. Impervious Area, for Water Quality pervious / Impervious Calculations Only
= (Site Area for Water Quality Pervious / Impervious) - Pervious

$Iq := Site_Area - Perv$ $Iq = 76933\,ft^2$ $Iq = 1.77\,acre$

$$Percentage_Imp := \frac{Iq}{Site_Area}$$ $Percentage_Imp = 0.45$

c. For 2.5 inches x Percentage Impervious

$Treated := 2.5 \cdot in \cdot Percentage_Imp$ $Treated = 1.13\,in$

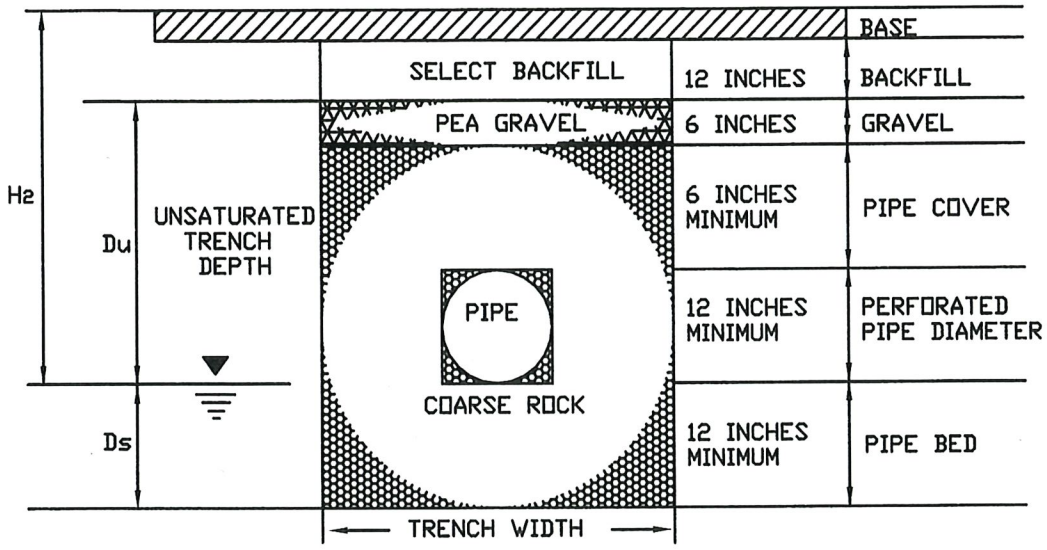
d. Compute Volume Required for Quality Detention as Per SFWMD

$R1 := Treated \cdot (T - La)$ $R1 = 0.46\,acre \cdot ft$

Dry Detention 75% credit: $R1a := R1 \cdot 75\%$ $R1a = 0.34\,acre \cdot ft$

$$12 - \frac{(12 - 11) \cdot (0.38 \cdot acre \cdot ft - R1a)}{0.38 acre \cdot ft - 0.02 \cdot acre \cdot ft} = 11.9$$ **= SFWMD Water Quality Stage**

6. Trench Drain Evaluation:
SFWMD Trench Drain Calculations From Codes - Calcs Take into account abstraction value from soils.



Trench Calculations for Length of Trench
Rainfall To be Stored in Trenches in inches?

K value from Soils Test? $K := .000168$ CFS/FT^2-FT. Head

H2 Depth to Water Table? $H2 := 4 \cdot ft$ Design Condition

Du Non - Saturated Trench Depth? $Du := 4 \cdot ft$

Ds Saturated Depth of Trench? $Ds := 1 \cdot ft$

W Trench Width? $W := 6 \cdot ft$

$H := Du + Ds$ $H = 5\ ft$

Volume of Rainfall Calculated? $Vtrench := T \cdot 2in$

$Vtrench = 0.81\ acre \cdot ft$

Vtrench < R1 **(Required Water Quality/ Pre-treatment Volume)**

$$L := \frac{\left(\frac{Vtrench}{acre \cdot in}\right) \cdot ft^3}{K \cdot \left(H2 \cdot W + 2 \cdot H2 \cdot Du - Du^2 + 2 \cdot H2 \cdot Ds\right) + (.000139) \cdot W \cdot Du} \qquad L = 856.73\ ft$$

Upland Developed Basin Rainfall adjusted for trench

$$7\,in - \frac{Vtrench}{T} = 5\,in$$

$$11\,in - \frac{Vtrench}{T} = 9\,in$$

$$15\,in - \frac{Vtrench}{T} = 13\,in$$

7. 100 YR - 3 day:

Design Storm Runoff Volume:

$$Q100_3day := \left[\frac{(P - .2 \cdot Sw)^2}{P + .8 \cdot Sw}\right] \quad \text{where: } P := 13 \cdot in \qquad Sw = 2.98\,in$$

$$Q100_3day = 10\,in \qquad V100 := Q100_3day \cdot Total_Area$$

$$V100 = 4.07\,acre \cdot ft \quad \textbf{= 100 year - 3 day volume}$$

Storm Stage:

Interpolating information from the stage/storage analysis:

$$16.0 - \frac{(16.0 - 15.5) \cdot (4.37 \cdot acre \cdot ft - V100)}{4.37 acre \cdot ft - 3.24 \cdot acre \cdot ft} = 15.87 \textbf{= 100 year - 3 day stage}$$

D. Results

Towne Park Pre-developed Site:

The 25 yr - 3 day storm event:
North Condominium Basin 14.80 NGVD
Professional Center Basin 14.99 NGVD

Towne Park Developed Site:

1. The 10 yr - 1 day storm flood stage:
North Condominium Basin 14.02 NGVD
Professional Center Basin 14.09 NGVD
Minimum proposed parking elevation is elevation 15.00 NGVD

2. The 25 yr - 3 day storm flood stage:
North Condominium Basin 14.64 NGVD
Professional Center Basin 14.97 NGVD
Proposed site berm is at elevation 15.50 NGVD
Discharge 3.24 cfs (0.24 cfs/acre) < 4 cfs allowable

3. The 100 yr - 3 day storm flood stage:
Professional Center Basin 15.87 NGVD
Proposed building FFE elevation is 16.00 NGVD

Project Name: Towne Park Prof.
Reviewer: WJM
Project Number: 2065-01
  Period Begin: Jan 01, 2000;0000 hr End: Jan 16, 2000;0000 hr Duration: 360 hr
  Time Step: 0.2 hr, Iterations: 10

Basin 1: TP Condos

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 3day
  Design Frequency: 25 year
  3 Day Rainfall: 11 inches
  Area: 8.58899 acres
  Ground Storage: 2.18 inches
  Time of Concentration: 0.5 hours
  Initial Stage: 13 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
13.00	0.00
14.00	2.66
15.00	8.94
15.50	13.40

Basin 2: TP Prof PRE DEV

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 3day
  Design Frequency: 25 year
  3 Day Rainfall: 11 inches
  Area: 4.88 acres
  Ground Storage: 3.47 inches
  Time of Concentration: 0.5 hours
  Initial Stage: 11 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
13.00	0.00
14.00	0.32
15.00	1.71
15.50	3.47

Structure: 1

  From Basin: TP Condos
  To Basin: TP Prof PRE DEV
  Structure Type: Gravity
    Weir: Broad Crested, Crest Elev = 13 ft NGVD, Length = 4 ft, Weir Coef = 3.2
    Bleeder: None
    Pipe: None

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	13.00	11.00
12.00	0.59	0.05	0.00	0.00	13.00	13.00
24.00	1.18	0.19	0.11	0.00	13.05	13.06
36.00	2.04	0.41	1.24	-0.06	13.20	13.24
48.00	2.91	0.48	3.74	-0.16	13.42	13.48
60.00	8.22	29.66	9.29	-0.54	14.17	14.36
72.00	11.00	0.82	32.48	-1.16	14.80	14.98
84.00	11.00	0.00	32.73	-1.18	14.80	14.98
96.00	11.00	0.00	32.73	-1.18	14.80	14.98
108.00	11.00	0.00	32.73	-1.18	14.80	14.98

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
120.00	11.00	0.00	32.73	-1.18	14.80	14.98
132.00	11.00	0.00	32.73	-1.18	14.80	14.98
144.00	11.00	0.00	32.73	-1.18	14.80	14.98
156.00	11.00	0.00	32.73	-1.18	14.80	14.98
168.00	11.00	0.00	32.73	-1.18	14.80	14.98
180.00	11.00	0.00	32.73	-1.18	14.80	14.98
192.00	11.00	0.00	32.73	-1.18	14.80	14.98
204.00	11.00	0.00	32.73	-1.18	14.80	14.98
216.00	11.00	0.00	32.73	-1.18	14.80	14.98
228.00	11.00	0.00	32.73	-1.18	14.80	14.98
240.00	11.00	0.00	32.73	-1.18	14.80	14.98
252.00	11.00	0.00	32.73	-1.18	14.80	14.98
264.00	11.00	0.00	32.73	-1.18	14.80	14.98
276.00	11.00	0.00	32.73	-1.18	14.80	14.98
288.00	11.00	0.00	32.73	-1.18	14.80	14.98
300.00	11.00	0.00	32.73	-1.18	14.80	14.98
312.00	11.00	0.00	32.73	-1.18	14.80	14.98
324.00	11.00	0.00	32.73	-1.18	14.80	14.98
336.00	11.00	0.00	32.73	-1.18	14.80	14.98
348.00	11.00	0.00	32.73	-1.18	14.80	14.98
360.00	11.00	0.00	32.73	-1.18	14.80	14.98

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	32.73	77.20	-32.92	72.20

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
TP Condos	14.80	77.40	13.00	0.00
TP Prof PRE DE	14.99	72.60	11.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
TP Condos	6.27	0.00	-1.45	0.00	7.71	0.00
TP Prof PRE DE	3.13	-1.45	0.00	0.00	1.69	0.00

Project Name: Towne Park Prof.
Reviewer: WJM
Project Number: 2065-01
Period Begin: Jan 01, 2000;0000 hr End: Jan 16, 2000;0000 hr Duration: 360 hr
Time Step: 0.2 hr, Iterations: 10

Basin 1: TP Prof

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 24 hr
Design Frequency: 10 year
1 Day Rainfall: 5 inches
Area: 4.88 acres
Ground Storage: 2.98 inches
Time of Concentration: 0.5 hours
Initial Stage: 11 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
11.00	0.02
12.00	0.38
13.00	0.84
14.00	1.39
15.00	2.34
15.50	3.24

Basin 2: TP Condos

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 24 hr
Design Frequency: 10 year
1 Day Rainfall: 5 inches
Area: 8.55999 acres
Ground Storage: 2.49 inches
Time of Concentration: 0.5 hours
Initial Stage: 13 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
13.00	0.00
14.00	2.66
15.00	8.94
15.50	13.40

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	12.00
12.00	12.00
24.00	12.02
48.00	12.53
60.50	14.61
72.00	13.72
360.00	12.00

Structure: 1

From Basin: TP Prof
To Basin: Offsite1
Structure Type: Gravity
Weir: None
Bleeder: None

Pipe: Diameter = 1.25 ft, Manning's n = 0.01, Length = 453 ft
US Invert Elev = 12 ft NGVD, DS Invert Elev = 10 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	-3.62	0.00	11.00	12.00
12.00	3.28	6.79	1.91	-0.21	12.28	12.00
24.00	5.00	0.25	1.05	1.61	12.10	12.02
36.00	5.00	0.00	0.16	2.01	12.27	12.27
48.00	5.00	0.00	0.26	2.09	12.53	12.53
60.00	5.00	0.00	-3.05	0.27	13.82	14.53
72.00	5.00	0.00	2.01	-0.72	14.03	13.72
84.00	5.00	0.00	1.74	-0.02	13.88	13.65
96.00	5.00	0.00	1.65	0.29	13.79	13.58
108.00	5.00	0.00	1.63	0.54	13.71	13.51
120.00	5.00	0.00	1.63	0.77	13.63	13.43
132.00	5.00	0.00	1.62	1.01	13.56	13.36
144.00	5.00	0.00	1.62	1.24	13.49	13.29
156.00	5.00	0.00	1.62	1.47	13.42	13.22
168.00	5.00	0.00	-0.68	1.54	13.41	13.15
180.00	5.00	0.00	-0.60	1.56	13.05	13.07
192.00	5.00	0.00	0.21	1.83	13.01	13.00
204.00	5.00	0.00	0.13	1.99	12.93	12.93
216.00	5.00	0.00	0.26	2.10	12.87	12.86
228.00	5.00	0.00	0.28	2.18	12.79	12.79
240.00	5.00	0.00	0.28	2.25	12.72	12.72
252.00	5.00	0.00	0.28	2.31	12.65	12.65
264.00	5.00	0.00	0.28	2.37	12.58	12.57
276.00	5.00	0.00	0.27	2.42	12.51	12.50
288.00	5.00	0.00	0.27	2.46	12.44	12.43
300.00	5.00	0.00	0.27	2.51	12.36	12.36
312.00	5.00	0.00	0.27	2.55	12.29	12.29
324.00	5.00	0.00	0.27	2.59	12.22	12.22
336.00	5.00	0.00	0.27	2.63	12.15	12.14
348.00	5.00	0.00	0.27	2.67	12.08	12.07
360.00	5.00	0.00	0.28	2.71	12.01	12.00

Structure: 2

From Basin: TP Condos
To Basin: TP Prof
Structure Type: Gravity
Weir: None
Bleeder: None
Pipe: Diameter = 2 ft, Manning's n = 0.01, Length = 50 ft
US Invert Elev = 13.2 ft NGVD, DS Invert Elev = 13 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	13.00	11.00
12.00	3.28	13.19	0.15	0.00	13.18	12.28
24.00	5.00	0.45	0.77	0.93	13.42	12.10
36.00	5.00	0.00	0.28	1.40	13.25	12.27
48.00	5.00	0.00	0.14	1.60	13.18	12.53
60.00	5.00	0.00	-9.53	0.39	13.60	13.82
72.00	5.00	0.00	-5.91	-0.49	13.94	14.03
84.00	5.00	0.00	-8.34	0.10	13.71	13.88
96.00	5.00	0.00	-8.47	0.36	13.62	13.79
108.00	5.00	0.00	-8.50	0.57	13.54	13.71
120.00	5.00	0.00	-8.51	0.76	13.46	13.63
132.00	5.00	0.00	-8.51	0.95	13.39	13.56
144.00	5.00	0.00	-8.51	1.15	13.32	13.49
156.00	5.00	0.00	-8.51	1.34	13.25	13.42
168.00	5.00	0.00	8.24	1.55	13.22	13.41
180.00	5.00	0.00	0.36	1.31	13.28	13.05

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
192.00	5.00	0.00	0.17	1.55	13.19	13.01
204.00	5.00	0.00	0.10	1.68	13.15	12.93
216.00	5.00	0.00	0.06	1.76	13.12	12.87
228.00	5.00	0.00	0.04	1.81	13.10	12.79
240.00	5.00	0.00	0.03	1.84	13.08	12.72
252.00	5.00	0.00	0.02	1.87	13.07	12.65
264.00	5.00	0.00	0.02	1.89	13.07	12.58
276.00	5.00	0.00	0.02	1.91	13.06	12.51
288.00	5.00	0.00	0.01	1.92	13.05	12.44
300.00	5.00	0.00	0.01	1.94	13.05	12.36
312.00	5.00	0.00	0.01	1.95	13.05	12.29
324.00	5.00	0.00	0.01	1.96	13.04	12.22
336.00	5.00	0.00	0.01	1.96	13.04	12.15
348.00	5.00	0.00	0.01	1.97	13.04	12.08
360.00	5.00	0.00	0.01	1.98	13.03	12.01

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	2.94	13.20	-3.62	0.00
2	9.19	74.60	-9.94	52.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
TP Prof	14.09	67.80	11.00	0.00
TP Condos	14.02	68.00	13.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
TP Prof	1.07	1.97	2.71	0.02	0.38	-0.03
TP Condos	2.07	0.00	1.97	0.00	0.09	0.00

Project Name: Towne Park Prof.
Reviewer: WJM
Project Number: 2065-01
Period Begin: Jan 01, 2000;0000 hr End: Jan 16, 2000;0000 hr Duration: 360 hr
Time Step: 0.2 hr, Iterations: 10

Basin 1: TP Prof

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 3day
Design Frequency: 25 year
3 Day Rainfall: 9 inches
Area: 4.88 acres
Ground Storage: 2.98 inches
Time of Concentration: 0.5 hours
Initial Stage: 11 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
11.00	0.02
12.00	0.38
13.00	0.84
14.00	1.39
15.00	2.34
15.50	3.24

Basin 2: TP Condos

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 3day
Design Frequency: 25 year
3 Day Rainfall: 11 inches
Area: 8.55999 acres
Ground Storage: 2.49 inches
Time of Concentration: 0.5 hours
Initial Stage: 13 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
13.00	0.00
14.00	2.66
15.00	8.94
15.50	13.40

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	12.00
12.00	12.00
24.00	12.02
48.00	12.53
60.50	14.61
72.00	13.72
360.00	12.00

Structure: 1

From Basin: TP Prof
To Basin: Offsite1
Structure Type: Gravity
Weir: None
Bleeder: None

Pipe: Diameter = 1.25 ft, Manning's n = 0.01, Length = 453 ft
US Invert Elev = 12 ft NGVD, DS Invert Elev = 10 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	-3.62	0.00	11.00	12.00
12.00	0.48	0.00	0.26	-0.33	11.99	12.00
24.00	0.97	0.04	0.27	-0.32	12.02	12.02
36.00	1.67	0.13	0.29	-0.31	12.28	12.27
48.00	2.38	0.17	0.30	-0.11	12.54	12.53
60.00	6.72	12.68	-1.78	-1.29	14.28	14.53
72.00	9.00	0.36	3.24	0.70	14.59	13.72
84.00	9.00	0.00	2.53	3.55	14.20	13.65
96.00	9.00	0.00	-0.33	5.41	13.86	13.58
108.00	9.00	0.00	-1.03	5.89	13.73	13.51
120.00	9.00	0.00	-1.13	6.18	13.64	13.43
132.00	9.00	0.00	-1.15	6.42	13.56	13.36
144.00	9.00	0.00	-1.16	6.65	13.49	13.29
156.00	9.00	0.00	-1.16	6.89	13.42	13.22
168.00	9.00	0.00	-0.90	6.99	13.25	13.15
180.00	9.00	0.00	0.30	6.99	13.08	13.07
192.00	9.00	0.00	0.21	7.27	13.01	13.00
204.00	9.00	0.00	0.13	7.43	12.93	12.93
216.00	9.00	0.00	-0.02	7.54	12.87	12.86
228.00	9.00	0.00	-0.13	7.62	12.79	12.79
240.00	9.00	0.00	-0.15	7.69	12.72	12.72
252.00	9.00	0.00	-0.16	7.75	12.65	12.65
264.00	9.00	0.00	-0.17	7.81	12.58	12.57
276.00	9.00	0.00	-0.18	7.86	12.51	12.50
288.00	9.00	0.00	-0.18	7.90	12.44	12.43
300.00	9.00	0.00	-0.18	7.95	12.36	12.36
312.00	9.00	0.00	-0.19	7.99	12.29	12.29
324.00	9.00	0.00	-0.19	8.03	12.22	12.22
336.00	9.00	0.00	-0.19	8.07	12.15	12.14
348.00	9.00	0.00	-0.19	8.11	12.08	12.07
360.00	9.00	0.00	-0.22	8.15	12.01	12.00

Structure: 2

From Basin: TP Condos
To Basin: TP Prof
Structure Type: Gravity
Weir: None
Bleeder: None
Pipe: Diameter = 2 ft, Manning's n = 0.01, Length = 50 ft
US Invert Elev = 13.2 ft NGVD, DS Invert Elev = 13 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	13.00	11.00
12.00	0.59	0.02	0.00	0.00	13.00	11.99
24.00	1.18	0.16	0.01	0.00	13.04	12.02
36.00	2.04	0.38	0.09	0.04	13.14	12.28
48.00	2.91	0.46	0.25	0.20	13.23	12.54
60.00	8.22	29.08	-6.79	-0.87	14.17	14.28
72.00	11.00	0.81	2.60	0.08	14.53	14.59
84.00	11.00	0.00	2.20	2.56	14.14	14.20
96.00	11.00	0.00	9.18	4.23	13.71	13.86
108.00	11.00	0.00	8.97	4.64	13.56	13.73
120.00	11.00	0.00	8.92	4.88	13.47	13.64
132.00	11.00	0.00	8.90	5.08	13.39	13.56
144.00	11.00	0.00	8.90	5.28	13.32	13.49
156.00	11.00	0.00	8.90	5.47	13.25	13.42
168.00	11.00	0.00	0.32	5.41	13.24	13.25
180.00	11.00	0.00	0.35	5.31	13.28	13.08

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
192.00	11.00	0.00	0.16	5.54	13.19	13.01
204.00	11.00	0.00	0.09	5.67	13.15	12.93
216.00	11.00	0.00	0.06	5.74	13.12	12.87
228.00	11.00	0.00	0.04	5.79	13.10	12.79
240.00	11.00	0.00	0.03	5.83	13.08	12.72
252.00	11.00	0.00	0.02	5.86	13.07	12.65
264.00	11.00	0.00	0.02	5.88	13.07	12.58
276.00	11.00	0.00	0.02	5.90	13.06	12.51
288.00	11.00	0.00	0.01	5.91	13.05	12.44
300.00	11.00	0.00	0.01	5.92	13.05	12.36
312.00	11.00	0.00	0.01	5.93	13.05	12.29
324.00	11.00	0.00	0.01	5.94	13.04	12.22
336.00	11.00	0.00	0.01	5.95	13.04	12.15
348.00	11.00	0.00	0.01	5.96	13.04	12.08
360.00	11.00	0.00	0.01	5.96	13.03	12.01

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	3.24	72.00	-3.62	0.00
2	9.26	95.60	-9.54	52.60

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
TP Prof	14.67	66.60	11.00	0.00
TP Condos	14.64	64.80	13.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
TP Prof	2.52	5.96	8.15	0.02	0.38	-0.03
TP Condos	6.05	0.00	5.96	0.00	0.09	0.00

Stormwater Maintenance Plan

Exfiltration: (To be maintained by Owner)

The drainage system serving this project consists primarily of a below surface trench drain network and a Control Structure. Three of the inlets are placed in the parking lot area and seven in the grassed area. The three in the parking lot will be subject to less potential debris than the seven in the grassed area. The other inlets are subject to debris and therefore the tops are raised an additional 0.5' above the grass to help reduce sediments and debris from entering the trench drain system. The inlets are equipped with aluminum debris baffles.

During construction the inlets will have 1/2" plywood wrapped with filter cloth placed under the inlet grate to prevent debris from entering the system. This protection will remain until after final approvals and all landscaping has been completed.

- Inspection of the drainage inlets with removal of the grates shall be done in the months of May, July, and November of each year to remove any accumulation of debris. Inspection of the Control Structure should also be done in these months to remove any accumulation of debris.

- Once every three years the inlets and pipes shall be flushed and pumped by a company specializing in this type of cleaning.

- Should the rainwater begin to overflow the inlet tops, with the rainfall being less than 3 to 4 inches within a 4 hour period, then the system is to be inspected and cleaned as necessary.

- If required in control structures, skimmers are to be maintained periodically every time catch basin maintenance occurs.

Catch Basin Maintenance: (To be maintained by Owner)

Catch Basins shall have regularly scheduled maintenance a minimum of 1 time a year. Scheduled maintenance shall include but not be limited to clearing of all debris within the catch basin and removal of any obstructions in and around the catch basin. Catch Basins shall be maintained after any major storm event.

Nuisance Exotics: (To be maintained by Owner)

Stormwater management system will be monitored continually for nuisance exotics to ensure that no regrowth occurs.

Pervious Concrete: (To be maintained by Owner)

Also, the drainage system serving this project consists of pervious concrete. The sands upper layer is rapid draining and the water table is 4 feet deep. Therefore, the maintenance will primarily consist of keeping the retention area free of debris and the pervious concrete free of clays.

- Once every ten years the pervious concrete can be flushed and vacuumed by a company specializing in this type of cleaning.
- Should the rainwater begin to pond, with the rainfall being less than 3 inches within a 4-hour period, then the pervious concrete is to be inspected and cleaned as stated above.

Ordinance 2487-2022
Staff Report

A. Application

Sailfish Cay
Small-Scale Future Land Use Amendment and Rezoning
Application Number: Z21110003

Applicant	751 SE Central, LLC
Property Owner	Cypress Holding, LLC
Agent for Applicant	Johnston Group Development and Design, Inc.
Project Manager	Erin Wohlitka, Senior Planner
Date of Report	April 1, 2022

B. Executive Summary and Background

Executive Summary

The intent of this application is to request a rezoning from a Commercial Planned Unit Development (CPUD) to a Residential Planned Unit Development (RPUD) and a Small-Scale Future Land Use Amendment from Commercial (C) to Multi-Family Residential (MF-RES) to allow the construction of 60 multifamily townhouse units on 4.88 acres of land located at 751 SE Central Boulevard.

The Applicant is requesting three waivers. Staff recommends approval of Ordinance 2487-2022.

Background

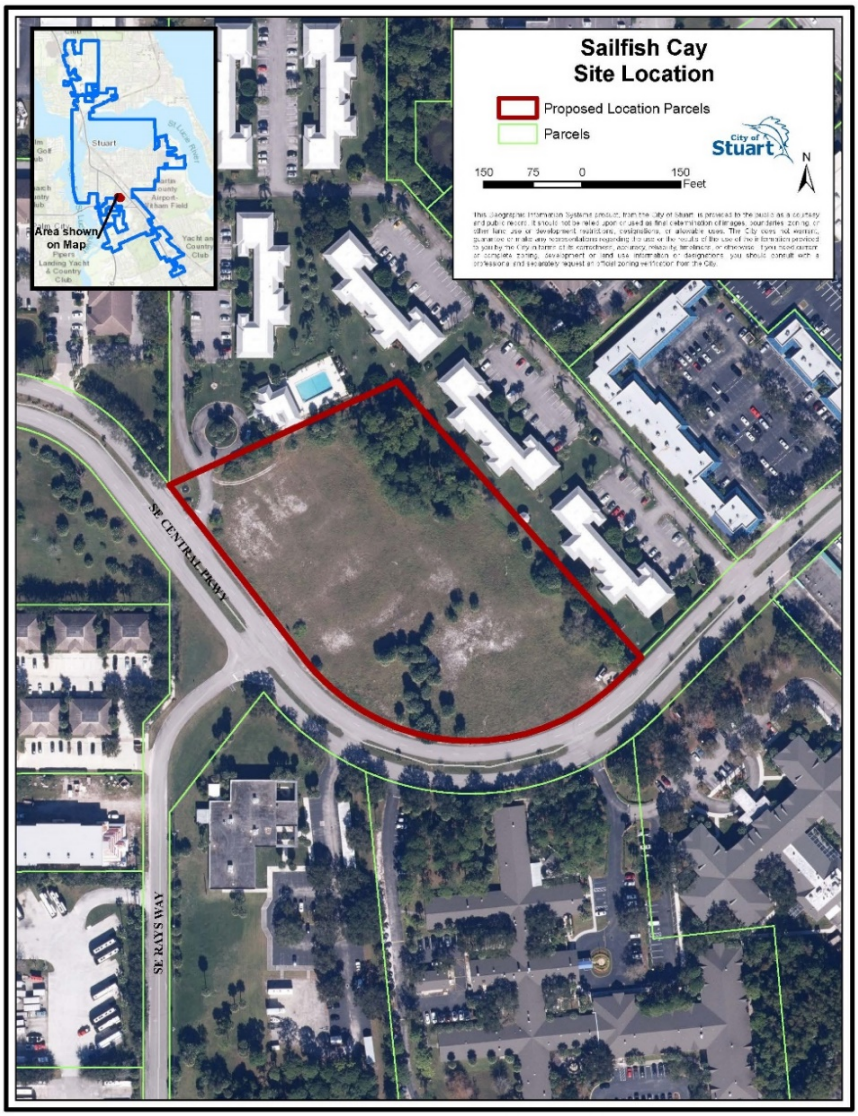
The subject property was originally approved in the early 1980s as Phase VI of the multi-family residential Towne Park North Condominium project under R-3 zoning with a Future Land Use (FLU) of Multi-Family Residential. The connection of the site to the surrounding residential exists through remaining utility and drainage easements; however, this phase of the development was never constructed. In the mid-1980s, the property was developed as a church use by Abundant Ministries under the same R-3 zoning designation. In 1989, the City of Stuart adopted its first Comprehensive Plan and assigned a future land use category of Multi-Family Residential to the property.

On June 14, 1993, the City of Stuart City Commission adopted Ordinance 1293-93, approving a land use amendment from multi-family residential to institutional for the Abundant Life Ministries Church. The zoning on the subject property remained R-3. The Abundant Ministries church remained on site until the mid-2000s when it was demolished.

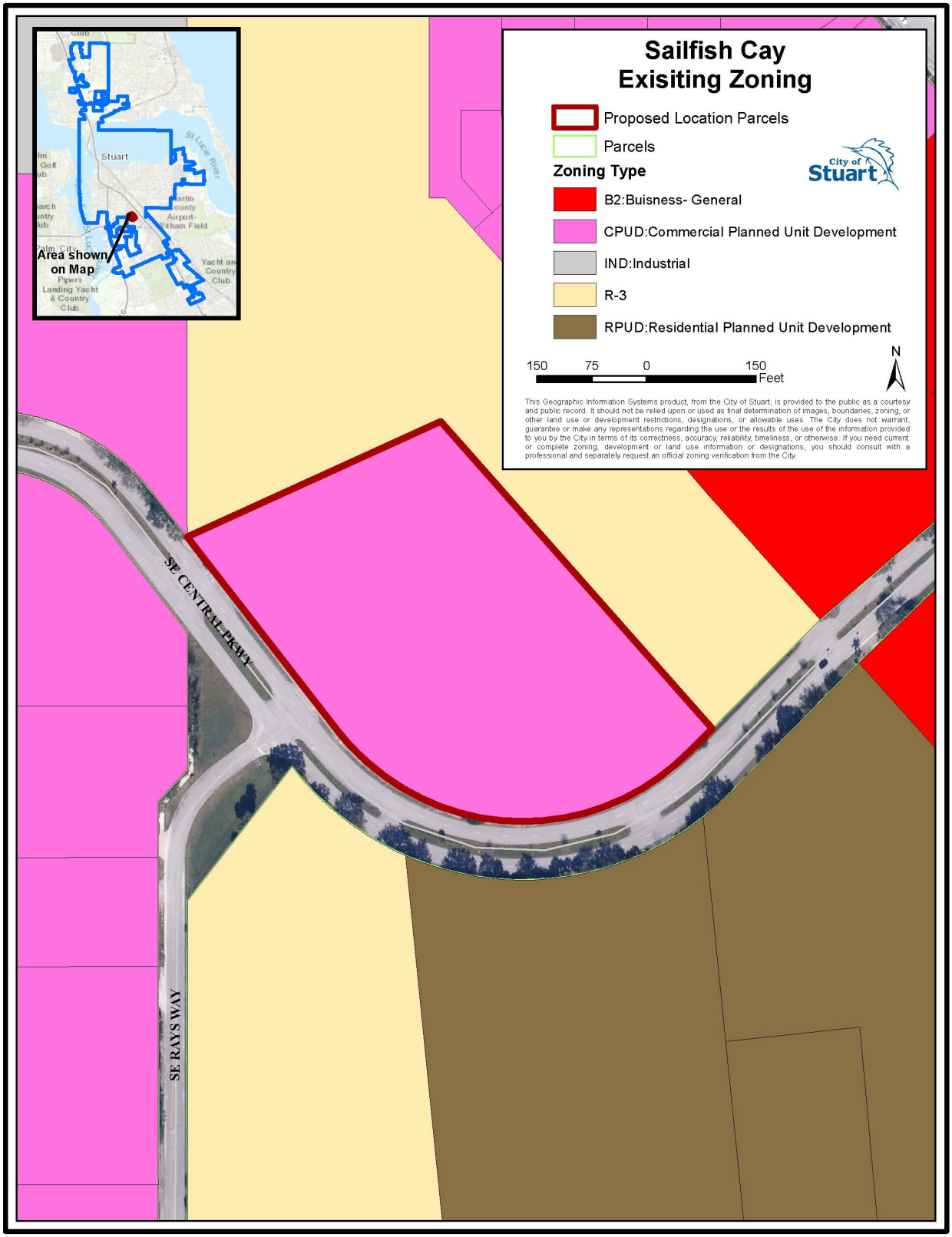
On May 14, 2007, the City of Stuart City Commission adopted Ordinance 2106-07, approving a land use amendment from Industrial to Commercial and a rezoning from R-3 to Commercial PUD (CPUD) to allow for a professional and medical office center. This project was never constructed. The site has remained vacant since the church was demolished.

C. Site Location and Information

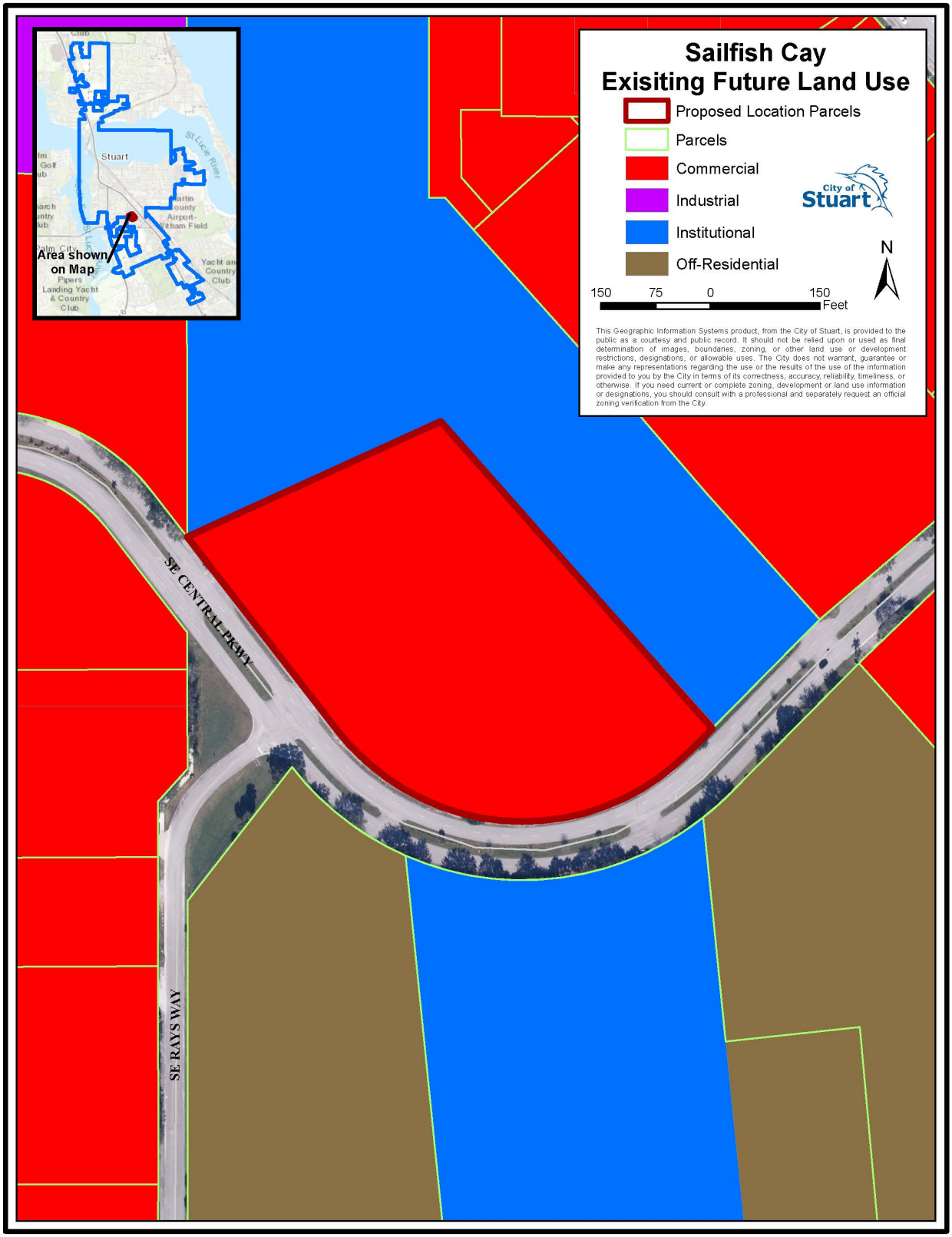
Address	751 SE Central Parkway
Parcel Number(s)	09-38-41-011-000-00001-1
Existing Zoning	Commercial Planned Unit Development (CPUD)
Future Land Use	Commercial (C)
Site Area (acres)	4.88 Acres
Present Use	Vacant
Proposed Land Use Designation	Multi-Family Residential (MF-RES)
Proposed Zoning District	Residential PUD (RPUD)
Proposed Use	Multi-Family Townhome Community



Existing Zoning Map



Existing Future Land Use Map



C. Determination of compliance with Comprehensive Plan

The proposal complies with the following Objectives and Policies of the City of Stuart Comprehensive Plan:

Policy 1.A3.2. The City's Future Land Use Map and land development regulations shall direct development to areas where adequate utilities, services and schools exist or are planned in order to protect natural resources.

> *Staff Analysis: Due to the site's previous use as a church, utilities exist for this project. The Applicant has submitted modifications to existing utility easements and provided new utility connections, while upgrading the fencing and screening of the existing lift station. City staff has received a school capacity determination that states, "…the School District has determined that sufficient school capacity exists to serve the change in residential dwelling units proposed in this application to meet the school concurrency requirements under Florida Statute 163.3180." Public transportation is available at the eastern terminus of SE Central Parkway's intersection with the US Highway-1 corridor (via the Treasure Coast Connector), and at the western terminus of SE Central Parkway at its' intersection with Kanner Highway (via Route 3).*

Policy 1.A7.1. The City of Stuart has designated the following land use categories and allowed uses for all land within the City of Stuart: …(B) Multi-Family Residential: One to three or more dwelling units per building. Includes single family detached, duplex, townhomes, patio homes, garden homes, apartments, condominiums, foster homes, group homes of four or fewer unrelated residents, and adult congregate living facilities (ACLF) of five or fewer unrelated residents. A limited amount of Commercial is allowed. Stealth communication towers are allowed. Also, public facilities, churches, day care centers, schools and electric distribution substations are allowed.

> *Staff Analysis: The applicant has proposed a mix of 4-, 5-, 6-, and 7-unit townhome buildings on the subject property.*

Policy 1.A7.2. Gross densities, gross intensities and proportional use amounts for each land use category are established in the "Table of Land Use Densities and Intensities" that is adopted as part of this element…

Land Use Category	CRA	General	UPUD, RPUD, or UCE	ALF	Residential	FAR	Non-residential
Multi-Family Residential	Out	<10 du/ac to 11.62 du/ac	<30 du/ac	<30 du/ac	70—100%	<0.5 FAR	0—30%

> *Staff Analysis: The applicant has proposed the multi-family land use category and concurrent rezoning to a RPUD that will set the maximum density at 12.3 dwelling units per acre. Thus, the proposed future land use density and intensity as established within the comprehensive plan will be protected.*

Objective 1.B1. - Compact Urban Form: Discourage urban sprawl by facilitating urban redevelopment and infill development of properties and planning for urban infill and redevelopment of lands located within Stuart in order to achieve a compact urban form.

Staff Analysis: The applicant has proposed to build on a site that was already cleared and utilized for prior development as a church. The subject property is located within two miles of downtown Stuart, thus providing a residential option close to the urban core of the City. Providing a residential land use in this proximity to downtown aids in the discouragement of urban sprawl and redeveloping a previously built site helps to achieve a compact urban form.

Policy 1.B3.2. All development shall be compatible with and complementary to surrounding land uses and shall not unduly affect existing approved activities.

Staff Analysis: The applicant has proposed a multi-family residential development that is surrounded on the north and west boundaries by the existing Towne Park Condominium project and the SE Central Parkway right-of-way to the south and east. Other uses along SE Central Parkway include office, multi-family residential and an assisted living facility. This is one of the last undeveloped sites on SE Central Parkway, which has existing multi-family residential projects on both sides of the roadway. Thus, the new development is compatible with and complementary to the surrounding land uses.

Policy 1.B3.7. Open spaces are relatively undeveloped areas used to enhance natural resource conservation, recreation, or aesthetic functions of an urban environment. Open spaces may include preserved wetlands, landscaped stormwater facilities, landscaped areas, playgrounds, parks, and golf courses.

Staff Analysis: The proposed project includes a passive park located in the rear of the site. This area currently exists with mature pine trees, most of which are proposed to remain. The applicant has provided walking trails and a bench for use by the residents of the Sailfish Cay community. The applicant also stated that this passive park can be used by the residents of the Towne Park Community if those residents wish to visit. The applicant has also worked with staff to beautify the SE Central Parkway right-of-way median in front of the project with sod, groundcover material, and flowering trees and palms. The applicant has agreed to install and maintain this right-of-way median landscaping in perpetuity.

Policy 1.B3.9. The City shall implement architectural and site design requirements for commercial development that utilize "Crime Prevention Through Environmental Design" principles include natural surveillance and defensible space. This shall include site designs that provide for unobstructed supervision of public activity areas and access points by occupants and law enforcement while conducting routine activities and thereby discouraging criminal activity.

Staff Analysis: The applicant has proposed a project where the front doors face either the street, the lake, or the landscape buffer. Each of these units have a front yard with sidewalks connecting to each building throughout the community and off-site. This design allows for residents to have "eyes on the street" so they are able to look out for the health, safety, and welfare of their neighbors. The applicant has proposed low-level bollard lighting around these walkways to provide additional opportunities for lighting in addition to the light poles required by the City's land development code.

E. Project Details

Traffic

The City's Traffic Consultant, Kimley Horn and Associates, Inc., has completed the review of the applicant's Long Range Traffic Analysis and Site Plan Traffic Analysis and confirmed that the proposed development is consistent with the City's Concurrency Requirements. According to the Long-Range Traffic Analysis, prepared by O'Rourke Engineering & Planning, the change in future land use from Commercial (C) to Multi-Family Residential (MF-RES) would result in a decrease of 11,151 daily trips (269 AM peak hour trips and 1,027 PM peak hour trips). Furthermore, the applicant compared the 2007 commercial approval to the proposed multi-family use and determined that the current proposal would have 334 less daily trips, a 42.7% decrease in daily trips than what the commercial use would generate. According to the Site Plan Traffic Analysis, the proposed 60 townhome units will generate 41 AM peak hour trips and 46 PM peak hour trips and will not cause the levels of service to fall below acceptable levels in the future.

Drainage

The City's Traffic Consultant, Kimley Horn and Associates, Inc. completed the review of the applicant's Stormwater Report and has confirmed that the proposed development meets the City's requirements for stormwater management. As stated within the applicant's drainage report, the project's stormwater management system will consist of a 0.5-acre lake that will treat stormwater generated from the proposed development as well as accepting off-site flows from the Towne Park Condominiums to the north. The ultimate outfall for the project will remain the same in the post development condition, which discharges stormwater to the south into the Towne Park South basin. Discharges eventually reach the Poppleton Creek and ultimately the St. Lucie River. The project proposes low-impact development, such as pervious pavers, bioswales and bunker inlets, as part of the stormwater management system to limit run-off, retain additional stormwater, and reduce overall nitrogen and phosphorus discharge loads.

Existing Site Details

The subject property was previously used as a church. All structures were demolished when the property was subject to a proposal for a professional office center that was never constructed. The site has since remained vacant but includes mature slash pine trees in the rear of the property as well as other sabal palm trees located in various areas on the site.

Proposed Project Details

Access and Circulation

Access is granted to the site through one point of ingress/egress along SE Central Parkway that aligns with Rays Way across the street. The entrance features an 8-foot-wide paver crosswalk and pervious brick pavers. The main access drive into the subject site is ungated. An entry sign is proposed to be located within the entrance median along with a 20-foot-tall specimen southern live oak tree amid other low-level landscaping. A bioswale with various grasses and groundcover that will thrive in wet conditions is located adjacent to the entrance drive. Vehicular circulation is provided via one internal loop that connects the rear-loaded garages of all the townhome buildings. Pedestrian circulation is provided through an interconnected system of 8-, 6-, and 5-foot-wide sidewalks. An 8-foot-wide sidewalk is located along SE Central Parkway and is connected to the 5-foot-wide internal sidewalks by a 6-foot-wide path in between buildings 11 & 12. The City's code requires 8-foot-sidewalks; therefore, the applicant is requesting a

waiver to deviate from this requirement in order to provide 5- and 6-foot-wide sidewalks. Further analysis of this waiver is provided on page 9 of this report.

Building Area and Site Layout

The applicant has proposed a total of 60 townhome units within 12 townhouse buildings. The structures range between 4-7 units per building. The proposal includes five buildings that front SE Central Parkway, three buildings that front the ½ acre lake, and four buildings that front the landscape buffer. The building frontages include fenced-in front patios with a gate that connects to the interconnected sidewalk system. It is important to note that staff and the applicant have been working to provide a missing link of this sidewalk system from Building 8 to Building 7. Staff has been told that the Applicant will provide revised plans to City Commission that shows a sidewalk connection from north of Building 8 to Building 7, thus allowing Building 8 residents to safely access the passive park without walking in the drive aisle.

The buildings are rear loaded and are all connected through the internal vehicular loop that connects at the ingress/egress point located on SE Central Parkway. A passive park with preserved slash pines and additional native vegetation is proposed in the rear of the project site. Benches and doggy stations are proposed within the passive park and other areas of the community.

Parking

The City's code requires two (2) parking spaces per multi-family dwelling unit (two (2) or more bedrooms) and garages can count towards required off-street parking. The applicant has provided two-car garages in the rear of every dwelling unit in order to meet the required 160 parking spaces on site. The applicant has also provided an additional 37 parking spaces, 22 of which are proposed on-street and 15 are internal to the site along the vehicular loop, for guest and handicap use.

Pursuant to the City's parking code requirements, two bicycle parking spaces (one bicycle rack) per ten units are required. The applicant has met this requirement by providing six (6) bicycle racks and twelve (12) bicycle parking spaces in various locations of the development (all adjacent to sidewalks).

Landscaping, Open Space, and Native Vegetation Area

City staff has reviewed the proposed landscaping and the applicant's proposal meets and exceeds the requirements set forth in the City's landscape code. The applicant is proposing a landscape palette consisting of 100% native plant material on the subject property. The proposal provides a total 128 trees within the perimeter buffer and 203 trees within the interior of the site, far exceeding the code requirements for buffer and interior trees. Additionally, the project preserves a total of 16 trees onsite, 11 of which are mature slash pine trees located in the rear of the site where the applicant is proposing a passive park. As previously stated, the project entrance will be landscaped on both sides with trees and groundcover. In the entrance median, various groundcover species and a 20-foot-tall specimen southern live oak is proposed. Furthermore, the applicant has agreed to beautify the SE Central Parkway roadway median by installing and maintaining 8 Alexander Palms, 11 Pink Tabebuias, sod, and groundcover. The City's code requires 30% of open space within the project. The proposal exceeds this requirement through the provision of 30.4% open space. Additionally, the code requires a minimum of 25% for a native vegetation area. The applicant has provided a total of 28.3% of a native vegetation area. Finally, the applicant is permitted a maximum of 65% impervious area. The applicant is requesting to deviate from this code requirement and is requesting a waiver for an additional 4.7% impervious. A further breakdown of this waiver request is located on page 9 of this report.

Architecture

The applicant's proposal includes significant architectural features with the provision of vertical and horizontal projections and recesses, tower features, balconies, shutters, and cladding. As previously stated, the buildings are rear-loaded, and the air conditioning units are proposed on the sides of each building so as to not interfere with the enjoyment of the residents while on their front patios. The orientation of the buildings create interaction with the public street, ensuring a connection between the development and the community.

Signage

The Applicant has provided staff with a location and design for the proposed monument sign. The monument sign meets the setback requirements and the scale and conformity with the overall development.

Waivers

#	CODE	REQUIREMENT	PROPOSED	WAIVER REQUESTED
1	*Section 2.04.01, Table 5, Residential Area, Impervious Surface Coverage, Setback and Height Requirements*	25-foot front setback	10-foot front setback	15 feet
2	*Section 2.04.03(C)., Increased impervious surface coverage allowances for residential zoning districts*	65% Maximum Impervious Surface Coverage	69.7%	4.7%
3	*Section 6.01.04(B), Sidewalks and bikeways*	Eight-foot-wide sidewalks	5-foot-wide sidewalks	3 feet

(1) The applicant has requested a waiver for the front setback for the buildings fronting SE Central Parkway. In order to create an urban walkable neighborhood, it is important to provide buildings that are close to and front the street create interaction between the development and the community. Staff recommends approval of this request.

(2) The applicant has requested a waiver for the amount of impervious surface coverage. The code allows for single-family and two-family dwellings in all residential districts to increase the amount of impervious area to 65%. Townhouses function more similarly to two-family duplexes than they do multi-family apartments and condominiums; as such, this code section is more appropriate to be utilized for this project than the multifamily requirement. The applicant has determined that the soils of the site are proven to accommodate the additional runoff via soil boring tests by the registered professional engineer. In addition, the applicant is exceeding the requirements for stormwater management through the utilization of low impact development that aid in the filtration of water. The applicant has proposed bio swales, pervious pavers, and rain bunkers. Staff recommends approval of this request.

(3) The applicant has requested a waiver to deviate from the required sidewalk width. The applicant has provided the required 8-foot-wide sidewalk along the SE Central Parkway right-of-way. The internal sidewalks are proposed at 5 feet, which the applicant feels is sufficient for the residents to use to walk to the passive park, pool, or cabana. Staff recommends approval of this request.

F. Staff Analysis

Staff has reviewed the subject petition for a Future Land Use amendment from Commercial (C) to Multi-Family Residential (MF-RES) and a rezoning from Commercial Planned Unit Development (CPUD) to Residential Planned Unit Development (RPUD) located at 751 SE Central Parkway.

In summary of the Future Land Use amendment review, City staff and the City's consultants have determined that the land use change meets the City's concurrency requirements. This project site was originally planned as a part of the Towne Park residential community, which had a multi-family land use designation as a part of the City's first Comprehensive Plan established in 1989. The site has gone through many Future Land Use changes throughout the past 30+ years; however, it is important to note that this site was never developed with the exception of the Abundant Life Ministries church until its demolition in 2007. The site has been commercial land for the last 15 years and has remained vacant. Adjacent uses are largely multi-family residential. As such, it is of staff's opinion that a multi-family residential future land use would be beneficial for this site and would be compatible with and comparable to adjacent uses.

In summary of the rezoning and site plan review, City staff and the City's consultants have determined that the proposal meets the requirements of the Land Development Code, subject to the waivers requested herein. The project complies with many objectives and policies within the City's Comprehensive Plan and supports compact urban development with the proposed front setback reductions, interconnected sidewalk system, on-street parking, and architecture with front-porches and rear-loaded garages.

Staff recommends approval of Ordinance 2487-2022.

City of Stuart
121 SW Flagler Ave.
Stuart, FL 34994
development@ci.stuart.fl.us
(772) 288-5326

Received by:
Reviewed by:

Small-Scale Comprehensive Plan Amendment Application

Project ID# 221110004
(Staff Entry)

DEVELOPMENT
Received by

Pre-App Conference Date: October 4, 2021	Application Date:

SITE INFORMATION

Project Name: Sailfish Cay	Parcel ID#: 09-38-41-011-000-00001-1
Site Address: 751 SE Central Parkway, Stuart FL	
Subdivision: Towne Park	Lot(s): N/A
Site Acreage: 4.88	Flood Zone/Base Flood Elevation: X
Existing Zoning District / CRA Subdistrict (if applicable): CPUD	
Proposed Zoning District / CRA Subdistrict (if applicable): RPUD	
Current Comprehensive Plan Future Land Use Designation: COMM	
Proposed Comprehensive Plan Future Land Use Designation: Multi-Family Residential	
Existing Land Use: Vacant	Proposed Land Use: Townhomes
Proposed Square Footage (if applicable):	Proposed Density (if applicable): 12.5 du/acre

PETITIONER INFORMATION

Property Owner: Cypress Holding LLC	Phone Number / Email Address: (609) 921-6060 ext. 104/ gmaietta@hiltonrealtyco.com
Property Owner's Mailing Address: 902 CARNEGIE CENTER STE 400 PRINCETON NJ 08540	
Applicant (if not Owner): 751 SE Central, LLC	Phone Number / Email Address: (561) 691-4552 / ryan@johnstongroupinc.com
Applicant's Mailing Address: 224 Chimney Corner Lane, Suite 3032 Jupiter FL 33458	
Agent/Contact Person: Liz Levesque, AICP / Johnston Group Development and Design, Inc.	Phone Number / Email Address: (561) 691-4552 / liz@johnstongroupinc.com
Agent's Mailing Address: 224 Chimney Corner Lane, Suite 3032 Jupiter FL 33458	
Architect: Chandej Limpabandh / PCL Design Inc.	Engineer: Rod Kennedy / EDC
Planner: Liz Levesque, AICP / Johnston Group Development and Design, Inc.	Landscape Architect: Jason Litterick / Litterick Landscape Architecture

Statement of Ownership and Designation of Authorized Agent

(Please Print or Type)

Before me, the undersigned authority, personally appeared Jeffrey H. Sands, Managing Member of Hilton Realty Co., L.L.C., the Sole Member of Cypress Holding, LLC, Who, being by me first duly sworn, on oath deposed and says:

1. That he/she is the fee simple title owner of the property described in the attached Legal Description.
2. That he/she is requesting approval of a townhome residential project in the City of Stuart, FL.
3. That he/she has appointed Johnston Group Development and Design, Inc. to act as an authorized agent on his/her behalf to accomplish the above project.

Name of Owner: Cypress Holding, LLC, By: Hilton Realty Co., L.L.C, its Sole Member

Signature of Owner:

Jeffrey H. Sands, Managing Member
By: Name/Title

902 Carnegie Center, Suite 400
Street Address

Princeton, New Jersey 08540
City, State, Zip Code

P.O. Box

City, State, Zip Code

609-921-6060 x-109
Telephone Number

609-924-1992
Fax Number

jsands@hiltonrealtyco.com
Email Address:

STATE OF FLORIDA, COUNTY OF MERCER

Sworn and subscribed before me by means of ☑ physical presence or ☐ online notarization, this 25th day of October, 2021 By Jeffrey H. Sands, Managing Member of Hilton Realty Co., L.L.C., the Sole Member of Cypress Holding, LLC

Personally Known OR Produced Identification

Type of Identification Produced:

Kathleen M. Boyd
Notary Public

Kathleen M. Boyd
NOTARY PUBLIC OF NEW JERSEY
Commission Expires
April 2, 2023

My Commission expires:

Financial Responsibility Form

(Please Print or Type)

The Undersigned, as the Property Owner, Lessee, Contract Purchaser, or Applicant (circle one), acknowledges responsibility for all City expenses associated with the referenced application (s) including time spent by the City's consultants and further acknowledges that payment of consultant fees will be made prior to the receipt of the consultant comments.

Name: Ryan Johnston	City/State/Zip Code: Jupiter, FL 33458
Title: President	Telephone Number: (561) 691-4552
Company: 751 SE Central, LLC	Facsimile Number: (561) 691-4553
Company Address: 224 Chimney Corner Lane, Suite 3032	Email Address (optional): ryan@johnstongroupinc.com

I hereby certify that all information contained herein is true and correct.

1. Signed this 2ND day of NOVEMBER, 2021.

Signature of Property Owner, Lessee, Contract Purchaser or Applicant (circle one)

Application Requirements

Fee: $1,864.00 *(this does not include fees that may be charged as a result of application review by the City's consultants or any required recording fees)*

- **Submittal Requirements:** A completed application form, the payment of fees, one (1) copy of all documents on a PDF formatted disc electronically signed and sealed, and a justification for the proposed change and any other information required by the City Development Director.

Approving Authority: The Development Director is required to prepare a staff report and recommendation concerning this application. The Local Planning Agency (LPA) is required to hold an advertised public hearing and formulate a recommendation to the City Commission. The City Commission is also required to hold an advertised public hearing after which it may approve, approve with conditions, or deny the application.

Justification: Please explain the need and justification of the change and the relationship of the proposed change to the goals, objectives and policies of the City of Stuart Comprehensive Plan and Land Development Code *(include additional pages if needed).*

(over)

City of Stuart
121 SW Flagler Ave.
Stuart, FL 34994
development@ci.stuart.fl.us
(772) 288-5326

Received by: _____
Reviewed by: _____

Rezone Real Property Application

(including Planned Unit Developments)

Project ID#_____
(Staff Entry)

Pre-App Conference Date:	Application Date:
October 4, 2021	

SITE INFORMATION

Project Name: Sailfish Cay	Parcel ID#: 09-38-41-011-000-00001-1
Site Address: 751 SE Central Parkway	
Subdivision: Towne Park	Lot(s): N/A
Site Area/Acreage: 4.88	Flood Zone/Base Flood Elevation: X
Existing Zoning District / CRA Subdistrict: CPUD	
Proposed Zoning District / CRA Subdistrict: RPUD	
PUD Rezoning (Check the box below that applies):	
Rezoning to CPUD: ☐	Rezoning to UPUD ☐
Rezoning to RPUD: ☑	Rezoning to UPUD <5 Bungalow Units: ☐
Rezoning to MXPUD: ☐	Rezoning to Public Service PSPUD: ☐
Rezoning to Industrial IPUD: ☐	Rezoning to Non-PUD District Rezoning: ☐
Current Comprehensive Plan Future Land Use Designation: COMM	
Proposed Comprehensive Plan Future Land Use Designation (if applicable): Multi-Family Residential	
Existing Land Use: Vacant	Proposed Land Use: Townhomes
Proposed Square Footage (if applicable):	Proposed Density (if applicable): 12.5 du/acre

PETITIONER INFORMATION

Property Owner: Cypress Holding, LLC	Phone Number / Email Address: (609) 921-6060 ext. 104/ gmaietta@hiltonrealtyco.com
Property Owner's Mailing Address: 902 CARNEGIE CENTER STE 400 PRINCETON NJ 08540	
Applicant (if not Owner): 751 SE Central, LLC	Phone Number / Email Address: (561) 691-4552
Applicant's Mailing Address: 224 Chimney Corner Lane, Suite 3032 Jupiter FL 33458	
Agent/Contact Person: Liz Levesque, AICP / Johnston Group Development and Design Inc.	Phone Number / Email Address: (561) 691-4552 / liz@johnstongroupinc.com
Agent's Mailing Address: 224 Chimney Corner Lane, Suite 3032 Jupiter FL 33458	
Architect: Chandej Limpabandh / PCL Design Inc.	Engineer: Rod Kennedy / EDC
Planner: Liz Levesque, AICP / Johnston Group Development and Design, Inc.	Landscape Architect: Jason Litterick / Litterick Landscape Architecture

Statement of Ownership and Designation of Authorized Agent

(Please Print or Type)

Before me, the undersigned authority, personally appeared Jeffrey H. Sands, Managing Member of Hilton Realty Co., L.L.C., the Sole Member of Cypress Holding, LLC, Who, being by me first duly sworn, on oath deposed and says:

1. That he/she is the fee simple title owner of the property described in the attached Legal Description.
2. That he/she is requesting approval of a townhome residential project in the City of Stuart, FL.
3. That he/she has appointed Johnston Group Development and Design, Inc. to act as an authorized agent on his/her behalf to accomplish the above project.

Name of Owner: Cypress Holding, LLC, By: Hilton Realty Co., L.L.C., Sole Member

Signature of Owner: | By: Jeffrey H. Sands, Managing Member Name/Title

902 Carnegie Center, Suite 400
Street Address

Princeton, New Jersey 08540
City, State, Zip Code

P.O. Box

City, State, Zip Code

609-921-6060 x-109
Telephone Number

609-924-1992
Fax Number

jsands@hiltonrealtyco.com
Email Address:

STATE OF FLORIDA, COUNTY OF MERCER

Sworn and subscribed before me by means of ☑ physical presence or ☐ online notarization, this 25th day of October, 2021 By Jeffrey H. Sands, the Managing Member of Hilton Realty Co., L.L.C., the Sole Member of Cypress Holding, LLC,

Personally Known OR Produced Identification
Type of Identification Produced:

Kathleen M. Boyd
Notary Public

Kathleen M. Boyd
NOTARY PUBLIC OF NEW JERSEY
Commission Expires
April 2, 2023

My Commission expires:

City of Stuart Development Department, 121 SW Flagler Ave. Stuart, FL 34994 Phone: (772) 288-5326 Fax: (772) 288-5388

Financial Responsibility Form

(Please Print or Type)

The Undersigned, as the Property Owner, Lessee, Contract Purchaser, or Applicant (circle one), acknowledges responsibility for all City expenses associated with the referenced application (s) including time spent by the City's consultants and further acknowledges that payment of consultant fees will be made prior to the receipt of the consultant comments.

Name: Ryan Johnston	City/State/Zip Code: Jupiter, FL 33458
Title: President	Telephone Number: (561) 691-4552
Company: 751 SE Central, LLC	Facsimile Number: (561) 691-4553
Company Address: 224 Chimney Corner Lane, Suite 3032	Email Address (optional): ryan@johnstongroupinc.com

I hereby certify that all information contained herein is true and correct.

1. Signed this 2nd day of NOVEMBER, 2021.

Ryan Johnston

Signature of Property Owner, Lessee, Contract Purchaser or Applicant (circle one)

Application Requirements

Fees *(check box)*: *This does not include fees that may be charged as a result of application review by the City's consultants or any required recording fees.*

Rezoning to CPUD	$3,638.00	☐	Rezoning to UPUD	$3,638.00	☐
Rezoning to RPUD	$3,638.00	☑	Rezoning to UPUD < 5 Bungalow Units	$1,523.00	☐
Rezoning to MXPUD	$3,638.00	☐	Rezoning to Public Service PSPUD	$3,638.00	☐
Rezoning to Industrial IPUD	$3,638.00	☐	Non-PUD District Rezoning	$1,065.00	☐

Submittal Requirements: A completed application form, the payment of fees, one (1) copy of all documents on a PDF formatted disc electronically signed and sealed, and a site plan. (Note: A concept plan may, at the discretion of the applicant, be submitted instead of a site plan. However, in doing so the applicant acknowledges that a site plan will need to be submitted for City Commission approval prior to making application for a development permit.) The data requirements for a site plan and a concept plan are available at the Development Department.

Approving Authority: The Development Director is required to prepare a staff report and recommendation concerning this application. The Local Planning Agency (LPA) is required to hold an advertised public hearing and formulate a recommendation to the City Commission. The City Commission is also required to hold an advertised public hearing after which it may approve, approve with conditions, or deny the application.

Written justification supporting the application and demonstrating how the application:

- Is consistent with the relevant components of the City of Stuart Comprehensive Plan including concurrency with adopted levels-of-service for utilities/facilities and compatibility with existing/planned uses and
- Complies with the relevant development standards of the City of Stuart Land Development Code *(include additional pages if needed).*

(over)

City of Stuart

BEFORE THE CITY COMMISSION
CITY OF STUART, FLORIDA

ORDINANCE NUMBER 1174

AN ORDINANCE OF THE CITY OF STUART, FLORIDA, ADOPTING A COMPREHENSIVE GROWTH MANAGEMENT PLAN AS MANDATED BY THE LOCAL GOVERNMENT COMPREHENSIVE PLANNING AND LAND DEVELOPMENT REGULATION ACT, CHAPTER 163, PART II, FLORIDA STATUTES; REPEALING ALL ORDINANCES OR PARTS IN CONFLICT HEREWITH; PROVIDING FOR SEVERABILITY; PROVIDING REPEALER; PROVIDING FOR CODIFICATION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, in accordance with the procedures required by Section 163.3184, Florida Statutes, the City Clerk caused to be published in the Stuart News, a newspaper of general paid circulation in the county and of general interest in the community, pursuant to Chapter 50, Florida Statutes, a notice of change of land use in the form and manner required by Section 163.3184(15)(c), Florida Statutes. Notice of the first hearing was published on June 13, 1989 and notice of the second hearing was published on December 5, 1989; and

WHEREAS, in accordance with the said notices, the City Commission held advertised public hearings on the proposed ordinance in the Commission Room, City Hall, 121 S.W. Flagler Avenue, Stuart, Florida, on June 20, 1989 at 7:00 p.m., and on December 11, 1989, at 7:00 p.m., at which time interested parties and citizens had the opportunity to be heard; and

WHEREAS, immediately following the first public hearing the City Commission caused the transmittal of 10 copies of the complete proposed plan amendment to the State Land Planning Agency for written comments; and

WHEREAS, the State Land Planning Agency and all other agencies required by law have completed review of the proposed plan amendment, and have provided their written comments to the City Commission; and

WHEREAS, the City Commission has reviewed the written comments submitted to it by the State Land Planning Agency, and any other person, agency, or government and has considered such comments together with public comments presented at the public hearings.

NOW THEREFORE, BE IT ENACTED by the People of the City of Stuart, Florida as follows:

SECTION ONE:

The Comprehensive Plan for the City of Stuart, (City of Stuart Comprehensive Growth Management Plan) a copy of which is filed in the office of the City Clerk on the date this ordinance is passed, is hereby approved and adopted as the Comprehensive Plan to guide the future development and growth of the City of Stuart, Florida, as mandated by the Local Government Comprehensive Plan and Land Development Regulation Act. Chapter 163, Part II, Florida Statutes.

SECTION TWO:

In accordance with Section 163.3184(7), Florida Statutes, the City Clerk shall transmit five copies of the adopted Comprehensive Plan to the State of Florida Department of Community Affairs (State Land Planning Agency). The City Clerk shall also transmit a copy of the Comprehensive Plan to any other unit of local government or governmental agency in the State that has filed a written request with the City for a copy of such plan.

SECTION THREE: REPEALER

All ordinances or parts thereof in conflict with this ordinance be and hereby are repealed to the extent of such conflict.

SECTION FOUR: SEVERABILITY

If any section, sentence, clause, phrase or word of this ordinance is for any reason held or declared to be unconstitutional, inoperative or void, such holding of invalidity shall not affect the remaining portions of this ordinance, and it shall be construed to have been the intent of the City Commission to adopt this ordinance without such unconstitutional, invalid,

or inoperative part therein, and the remainder of this ordinance after the exclusion of such part or parts had not been included herein. If this ordinance or any provision thereof shall be held to be inapplicable to any person, groups of persons, property, kind of property, circumstances, or set of circumstances, such holding shall not affect its applicability to any other person, property or circumstance.

SECTION FIVE: CODIFICATION

Provisions of this ordinance shall be incorporated in the City Code and the word "ordinance" may be changed to "section" "article" or other appropriate word, and the sections of this ordinance may be renumbered or relettered to accomplish such intention.

PART SIX: EFFECTIVE DATE

This ordinance shall be effective on the 10th day of January, 1990.

ADOPTED on the first reading at a duly called meeting of the City commission of the City of Stuart, Florida, held on the 5th day of December, 1989.

PASSED on second reading at a duly called meeting of the City Commission of the City of Stuart, Florida, held on the 11th day of December 1989.

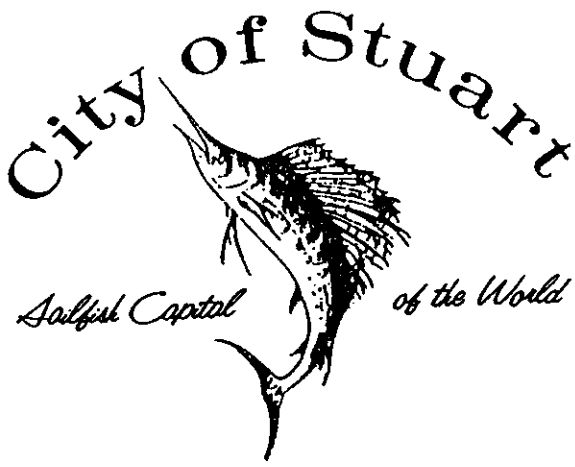
ATTEST:

Eileen G. Reeder
EILEEN G. REEDER
CITY CLERK

JOAN JEFFERSON
MAYOR

APPROVED AS TO FORM AND CORRECTNESS:

PRESTON T. EVERETT, JR.
CITY ATTORNEY



BEFORE THE CITY COMMISSION
CITY OF STUART, FLORIDA

ORDINANCE NUMBER 1293-93

AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA PROVIDING FOR AN AMENDMENT TO ORDINANCE NO. 1174 OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AS AMENDED, BEING THE COMPREHENSIVE PLAN OF THE CITY OF STUART, FLORIDA; PROVIDING A CHANGE IN LAND USE DESIGNATION FROM "MULTI-FAMILY RESIDENTIAL" TO "INSTITUTIONAL" IN THE FUTURE LAND USE ELEMENT AND ON THE FUTURE LAND USE MAP FOR A PORTION OF SECTION 9, TOWNSHIP 38 SOUTH, RANGE 41 EAST ABUTTING THE NORTH SIDE OF "CENTRAL PARKWAY" IN THE CITY; PROVIDING A CONFLICTS CLAUSE AND A SEVERABILITY CLAUSE; PROVIDING AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

* * * * *

WHEREAS, the City Commission of the City of Stuart, Florida has determined that the following ordinance is necessary for orderly growth and development, and to preserve and promote the public health, safety and welfare of the residents of the City of Stuart, Florida; and

WHEREAS, the City Commission of the City of Stuart, Florida has determined that all conditions precedent to the enactment of the following ordinance amending the official Comprehensive Plan of the City of Stuart, Florida, being Ordinance No. 1174 of the City Commission of the City of Stuart, Florida, as amended, have been performed as required by law.

NOW THEREFORE, BE IT ENACTED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA that:

SECTION 1: The real property which is described in "Exhibit A" attached hereto and made a part hereof by reference is owned by ABUNDANT LIFE MINISTRIES, ASSEMBLY OF GOD, STUART, FLORIDA, INC. The owner has made application to the City of Stuart for an amendment to the Comprehensive Plan of the City of Stuart, Florida, being Ordinance No. 1174 of the City Commission of the City of Stuart, Florida, as amended, to change the land use designation from "Multi-Family Residential" to "Institutional" in the Future Land Use Element and on the Future Land Use Map.

SECTION 2: Ordinance No. 1174 of the City Commission of the City of Stuart, Florida, as amended, being the Comprehensive Plan of the City of Stuart, Florida, is hereby amended to provide a land use designation change from "Multi-Family Residential" to "Institutional" for the real property which is described in "Exhibit A" attached hereto.

SECTION 3: All ordinances or parts of ordinances in conflict herewith being the same are hereby repealed to the extent of such conflict.

SECTION 4: If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect the other provisions or applications of this ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are declared severable.

SECTION 5: This ordinance shall take effect immediately upon its adoption at second reading.

ADOPTED on the first reading at a duly called meeting of the City commission of the City of Stuart, Florida, held on the 24th day of May, 1993.

PASSED on second reading at a duly called meeting of the City Commission of the City of Stuart, Florida, held on the 14th day of June, 1993.

ATTEST:

Eileen G. Reeder
EILEEN G. REEDER
CITY CLERK

Susan J. Hershey
SUSAN J. HERSHEY
MAYOR

APPROVED AS TO FORM AND CORRECTNESS:

Carl V. M. Coffin
CARL V. M. COFFIN
CITY ATTORNEY

EXHIBIT "A"

PARCEL I:
A parcel of land lying in the Southeast quarter of Section 9, Township 38 South, Range 41 East, Martin County, Florida, being more particularly described as follows:

Commencing at the Southeast corner of the West quarter of the West half of said Southeast quarter, run North 00°30'18" East along the East line of said West quarter, a distance of 1558.80 feet; thence run South 37°27'42" East, a distance of 4.39 feet to the POINT OF BEGINNING; thence run North 65°00'00" East, a distance of 376.35 feet; thence run South 41°27'42" East, a distance of 147.76 feet; thence run South 52°32'18" West, a distance of 377.79 feet; thence run North 37°27'42" West, a distance of 228.61 feet to the POINT OF BEGINNING.

PARCEL II:
A parcel of land lying in the Southeast quarter of Section 9, Township 38 South, Range 41 East, Martin County, Florida, being more particularly described as follows:

Commencing at the Southeast corner of the West quarter of the West half of said Southeast quarter, run North 00°30'18" East along the East line of said West quarter, a distance of 1558.80 feet; thence run South 37°27'42" East, a distance of 233.00 feet to the POINT OF BEGINNING; thence run North 52°32'18" East, a distance of 377.79 feet; thence run South 41°27'42" East, a distance of 180.00 feet; thence run South 52°32'18" West, a distance of 380.47 feet to a Point of Curvature of a circular arc concave to the East having a center angle of 14°16'28" and a radius of 320.00 feet; subtended by a long chord bearing North 44°35'57" West; thence run along said arc a distance of 79.72 feet to a Point of Tangency; thence run North 37°27'42" West, a distance of 100.66 feet to a POINT OF BEGINNING.

PARCEL III:
A parcel of land lying in the Southeast quarter of Section 9, Township 38 South, Range 41 East, Martin County, Florida, being more particularly described as follows:

Commencing at the Southeast corner of the West quarter of the West half of said Southeast quarter, run North 00°30'18" East along the East line of said West quarter, a distance of 1558.80 feet; thence run South 37°27'42" East, a distance of 333.66 feet to a Point of Curvature of a circular arc concave to the Northeast having a central angel of 14°16'28" and a radius of 320.00 feet; thence run along said arc a distnce of 79.72 feet to the POINT OF BEGINNING; thence run North 52°32'18" East, a distance of 380.47 feet; thence run South 41°27'42" East, a distance of 233.75 feet; thence run South 45°10'02" West, a distance of 44.75 feet; thence run South 48°32'18" West, a distance of 20.00 feet to the Point of Curvature of a circular arc concave to the Northeast having a central angle of 79°43'31" and a radius of 320.00 feet; thence run along said arc a distance of 445.27 feet to the POINT OF BEGINNING.

INSTR # 2044796
OR BK 02285 PG 0943
Pgs 0943 - 955; (13pgs)
RECORDED 10/17/2007 03:17:16 PM
MARSHA EWING
CLERK OF MARTIN COUNTY FLORIDA
RECORDED BY C Burkey

Return to:

City Attorney's Office
City of Stuart
121 SW Flagler Street
Stuart, FL 34994

BEFORE THE CITY COMMISSION
CITY OF STUART, FLORIDA

ORDINANCE NUMBER 2106-07

AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA TO APPROVE A COMMERCIAL PLANNED UNIT DEVELOPMENT (CPUD), PROVIDING A LAND USE DESIGNATION OF "COMMERCIAL" ON THE FUTURE LAND USE MAP OF THE CITY'S COMPREHENSIVE PLAN FOR A PROFESSIONAL AND MEDICAL OFFICE CENTER BEING GENERALLY A 4.88 ACRE PARCEL OF LAND ON THE NORTH SIDE OF SE CENTRAL PARKWAY; PROVIDING FOR APPROVAL OF A MASTER SITE PLAN; PROVIDING CONDITIONS FOR COMPLIANCE WITH SITE DESIGN QUALITATIVE DEVELOPMENT STANDARDS TO ESTABLISH THE "TOWN PARK PROFESSIONAL CENTER CPUD," A COMMERCIAL PLANNED UNIT DEVELOPMENT (CPUD); DECLARING THE CPUD DEVELOPMENT TO BE CONSISTENT WITH THE COMPREHENSIVE PLAN OF THE CITY; APPROVING CERTAIN DEVELOPMENT DOCUMENTS; APPROVING CERTAIN CONDITIONS OF DEVELOPMENT; REPEALING ALL ORDINANCES IN CONFLICT HEREWITH; PROVIDING A SEVERABILITY CLAUSE; PROVIDING AN EFFECTIVE DATE; PROVIDING FOR ACCEPTANCE BY THE APPLICANT; AND PROVIDING FOR DIRECTIONS TO THE CITY CLERK.

* * * * *

WHEREAS, an application for the rezoning to a Commercial Planned Unit Development (CPUD) was properly filed on behalf of the owners, Town Park Professional Center LLC, a Florida limited liability company, ("Owner," "Applicant," or "Developer," as variously used herein) by its representative, William J. Mathers P.E.; and

WHEREAS, the City is Authorized by law to provide a land use designation on the Future Land Use Map being a part of the Future Land Use Element of the City of Stuart Comprehensive Plan; and

WHEREAS, the Owner of the property, legally described as set forth in "Exhibit A", has requested the approval of the City Commission to construct a professional and medical office center on the property; and

WHEREAS, at the hearing the Owner showed by substantial competent evidence that the application is consistent with the Comprehensive Plan, and Land Development Code of the City, and with the procedural requirements of law; and

WHEREAS, the City Commission has determined the application is consistent with the overall planning and development goals and objectives of the City; and

WHEREAS, the CPUD is consistent with the Stuart Comprehensive Plan and the development will be in harmony with surrounding properties and their anticipated development.

WHEREAS, the real property described in "Exhibit A" attached hereto and made part of by reference is hereby designated as "Commercial" on the Future Land Use Plan of the City of Stuart, Florida. This amendment to the Future Land Use Map is consistent with all other provisions of the City Comprehensive Plan and with the Florida Growth management Act.

WHEREAS, the Future Land Use Map of the Future Land Use Element of the Comprehensive Plan of the City of Stuart, shall be amended to reflect this amendment. A map depicting the subject real property is attached hereto at "Exhibit B", and

WHEREAS, the Owner has committed to the City that its development will comply with all Development Documents, plans, standards and conditions approved by the City; and that it will bind its successors in title to any such commitments made upon approval of the CPUD; and

WHEREAS, the City Commission held a properly noticed hearing at a regularly scheduled City Commission meeting to consider the application of the Owner for the Property to approve the "Town Park Professional Center" as a Commercial Planned Unit Development (the "CPUD").

NOW THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA THAT:

SECTION 1: The foregoing recitals are true and adopted as findings of fact and conclusions of laws.

SECTION 2: A legal description of the Property is set forth in **"Exhibit A"** attached hereto and made a part hereof by reference. A map depicting the Property is attached hereto as **"Exhibit B"** and made a part hereof by reference.

SECTION 3: The Owner's written acceptance of this Ordinance shall constitute an agreement with the City for the purposes expressed herein, but the same shall not be construed as a "Development Agreement," as provided in Section 163.3221, Florida Statutes.

SECTION 4: The following documents, on file as public records of the City at the office of the City Development Department in City Hall, hereinafter the "Development Documents", shall be deemed a part of the development regulations applicable to the Property:

A. "Master Development Plan" prepared by Mathers Engineering Revision dated 05/31/2007 (Job# 2065-01).

B. "Landscape Plan" prepared by Landscape Architecture, Inc, Revision dated 11/18/2006.

C. "Boundary Topographic and Tree Survey" prepared by Stephen J. Brown, 11/19/04 .

D. "Building Elevations" prepared by Joseph A. Hamzy, Architect, dated 7/25/2006.

SECTION 5. The development of the Property shall be subject to the Conditions of Development set forth in **"Exhibit C"** attached hereto and made a part hereof by reference.

SECTION 6. Except as otherwise provided herein, no building permits, certificates of occupancy or other development orders or approvals shall be issued by the City except in compliance with the aforesaid Development Documents. The failure of the Developer to complete development, or to comply with the Development Documents, or with any term or condition of development set forth in this ordinance, shall be deemed a zoning violation and no further building permits, certificates of occupancy or other development approvals or orders shall be issued by the City until the violation has been resolved, and the matter may become the subject of a code enforcement action brought by the City. This section shall not impair the due process or other legal rights of the Developer to seek administrative or judicial redress.

SECTION 7: In addition to any other action for failure to complete development or to comply with the Development Documents, the City Development Director may obtain a hearing before the City Commission, and shall thereupon give at least five (5) days written notice of the time, date and location of the hearing, along with specific notice of the alleged breach. At the

hearing before the City Commission the developer may appear, and may contest the allegation of breach or explain the reason or reasons for the breach.

In the event a material breach is found to have occurred, the City Commission may initiate the process to amend or repeal this ordinance. In the event a material breach is found to have occurred, the City Commission may also direct the City Development Director to initiate the process to rezone the PUD property or any portion of the PUD property.

Any breach of any provision or condition of this PUD ordinance by the developer shall be considered a zoning violation subject to any remedies provided therefore in this PUD ordinance, as well as any other remedies provided by law.

In the event a material breach of this ordinance, and acceptance and agreement, by the developer is found to have occurred, the City Commission may impose an administrative penalty. Upon a finding by the City Commission that any material condition of PUD approval has been breached, the City Commission may impose a penalty of up to $1,000.00 for each violation, and each repeat violation that occurs, along with all reasonable costs, including attorneys fees incurred by the City. In the event the violation found is a continuing violation from day to day, each day the violation is found to continue may be deemed a separate violation.

SECTION 8: All ordinances or parts of ordinances in conflict with this ordinance or any part thereof are hereby repealed to the extent of such conflict. If any provision of this ordinance conflicts with any contractual provision between the City and the developer of the site, this ordinance shall prevail.

SECTION 9: If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications which can be given effect without the invalid provision or application, and to this end the

provisions of this ordinance are declared severable.

SECTION 10: This ordinance and agreement shall be effective upon the last of the following to occur: adoption by the City Commission, and proper execution by the Owner.

SECTION 11: Upon complete execution of this Ordinance, including the Acceptance and Agreement by the Owner, the City Clerk is directed to record a Certified Copy of the same in the Public Records of Martin County, Florida.

PASSED on first reading this 23 day of April, 2007.

Commissioner Waxler offered the foregoing ordinance and moved its adoption. The motion was seconded by Commissioner Mortell and upon being put to a roll call vote, the vote was as follows:

	YES	NO	ABSENT
MARY HUTCHINSON, MAYOR	✓		
JEFFREY KRAUSKOPF, VICE-MAYOR	✓		
JIM CHRISTIE, COMMISSIONER	✓		
CAROL WAXLER, COMMISSIONER	✓		
MIKE MORTELL, COMMISSIONER	✓		

ADOPTED on second and final reading this 14 day of May, 2007.

ATTEST:

CHERYL WHITE
CITY CLERK

MARY HUTCHINSON
MAYOR

APPROVED AS TO FORM
AND CORRECTNESS:

PAUL J. NICOLETTI
CITY ATTORNEY

CITY OF STUART · FLORIDA · INCORPORATED 1914 · SAILFISH CAPITAL OF THE WORLD

EXHIBIT A

INSTR # 1831208
OR BK 02003 PG 1828
RECORDED 04/18/2005 12:49:06 PM
MARSHA EWING
CLERK OF MARTIN COUNTY FLORIDA
DEED DOC TAX 7,000.00
RECORDED BY T Cobus (asst mgr)

Prepared by and return to:
Robert S. Kramer, Esq.
Kramer, Sopko & Levenstein, P.A.
853 SE Monterey Commons Boule vard
Stuart, FL 34996

File Number: 10134.01
Will Call No.: 80

Parcel Identification No. 09-38-41-011-000-00001-10000

[Space Above This Line For Recording Data]

Warranty Deed

(STATUTORY FORM - SECTION 689.02, F.S.)

This Indenture made this 6th day of April, 2005 between **Abundant Life Ministries, Assembly of God, Stuart, Florida, Inc., a Florida nonprofit corporation** whose post office address is **751 SE Central Parkway, Stuart, FL 34994** of the County of **Martin, State of Florida**, grantor*, and **George T. Kelly, IV, a single man** whose post office address is **521 SE Central Parkway, Stuart, Florida 34994** of the County of **Martin**, State of **Florida**, grantee*,

Witnesseth that said grantor, for and in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable considerations to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted, bargained, and sold to the said grantee, and grantee's heirs and assigns forever, the following described land, situate, lying and being in **Martin County, Florida**, to-wit:

All of TOWNE PARK, according to the Plat thereof as recorded in Plat Book 11, Page 85, Public Records of Martin County, Florida.

Subject to taxes for 2005 and subsequent years; covenants, conditions, restrictions, easements, reservations and limitations of record, if any.

and said grantor does hereby fully warrant the title to said land, and will defend the same against lawful claims of all persons whomsoever.

* "Grantor" and "Grantee" are used for singular or plural, as context requires.

In Witness Whereof, grantor has hereunto set grantor's hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

Witness Name: R.S. Kramer

Witness Name: Dawn E. Dailey

Abundant Life Ministries, Assembly of God, Stuart, Florida, Inc., a Florida nonprofit corporation

By: _____
Jonathan McClain, President/Pastor

(Corporate Seal)

State of Florida
County of Martin

The foregoing instrument was acknowledged before me this 6th day of April, 2005 by Jonathan McClain of Abundant Life Ministries, Assembly of God, Stuart, Florida, Inc., a Florida nonprofit corporation, on behalf of the corporation. He/she [✓] is personally known to me or [ ] has produced a driver's license as identification.

[Notary Seal]

Notary Public

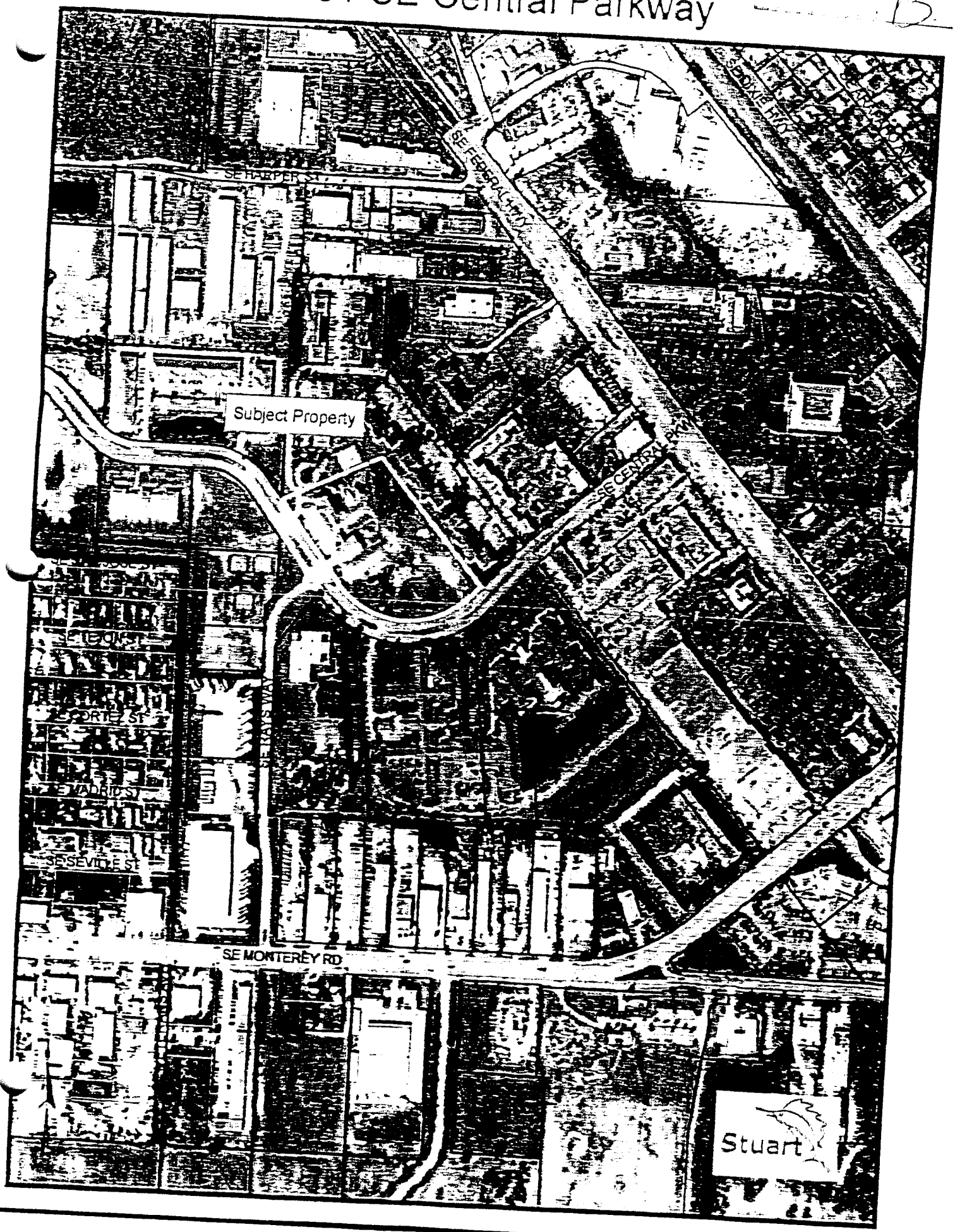
Printed Name: R.S. Kramer

Robert S Kramer
My Commission DD156970
Expires November 13, 2006

My Commission Expires:

751 SE Central Parkway

B



ORDINANCE #2106-07 'TOWNE PARK PROFESSIONAL CENTER' – EXHIBIT "C"

Approved Plans and Documents

1. The project shall comply with the Final Site Plan (Job# 2065-01) by Mathers Engineering Corporation, Dated 5/31/07.

2. The project shall comply with the Landscape Plan by Landscape Architecture, Inc., Last Revised 11/18/06.

3. The project shall comply with the Building Elevations by Joseph A Hamzy, Architect, Dated 7/25/06.

4. Any modifications to the CPUD Final Site Plan, due to final engineering, that exceeds 5% of the approved building footprint, building setbacks; density; building location; parking size, location and number; drainage areas; and location of landscaping shall require further approval by the City Commission via a public hearing.

Landscaping

5. All landscape areas shall be provided with an irrigation system of sufficient capacity to maintain the landscaping in a healthy growing condition.

6. The City's landscape inspector shall have the opportunity to inspect all trees and/or landscape material with the landscape architect prior to installation. The developer shall bear the pass-thru fee for landscape consulting fees not to exceed $1,500.00.

7. A Landscape maintenance plan, executed in accordance with the Land Development Regulations, shall be submitted prior to the issuance of a certificate of occupancy.

8. "Hat racking" of trees is prohibited on the property.

Prior to Issuance of Development Permit

9. The applicant agrees to contribute its fair share in the amount of $20,000 or a sum determined through fair share apportionment whichever is the lower to a fund to provide a traffic signal at the intersection of SE Central Parkway and U.S. Highway 1 at the time of final site construction plan approval and prior to the release of any building permit.

10. Applicant shall provide a digital boundary survey and site plan prior to the issuance of a development permit.

11. A boundary plat shall be approved by the City Commission and shall be recorded in the public records at Martin County prior to the issuance of any development permits.

12. Final site plan construction drawings shall be reviewed and approved by all applicable City departments.

13. All regulatory agency permits, including but not limited to the South Florida Water Management District and Army Corp of Engineers shall be obtained by the applicant and copies provided to the City prior to the issuance of a development permit.

14. Development shall comply with the City's Concurrency Management System prior to the issuance of development permits. A concurrency reservation certificate shall be binding upon the applicant meeting the following three standards:

    - Site Plan construction approval;
    - The issuance of building permits to commence construction; and
    - Pays all applicable impact and permit fees.

Development and Construction

15. In order to provide a buffer for the abutting residential property (Towne-Park Condominium), the applicant must install the 6' wood fence and/or masonry wall, as depicted within the aforementioned landscape plan prior to the construction of the first building.

16. Construction activity shall be limited from 7:00 am to 6:00 pm Monday – Saturday.

17. All mechanical equipment associated with the development shall be roof top or located behind the buildings. Equipment shall be equipped with decorative screening or landscaped with hedge material.

18. Backflow prevention devices and above ground utilities shall be delineated on the landscape plans during final site plan review and shall be out of view or screened from the public right-of-way.

19. The sidewalks along SE Central Parkway shall be constructed at a minimum width of six feet.

20. Erosion and dust control measures to be implemented during construction shall be provided on the civil engineering plans and submitted during final site plan review. Water trucks shall be provided by the applicant as necessary during construction in order to reduce dust generated on-site.

Development Timetable

21. Time table for development shall be as follows:

    Site Permit Submission
        Phase 1 – March 1, 2008
        Phase 2 – November 1, 2009
    Building Permit Submission
        Phase 1 – October 1, 2008
        Phase 2 – June 1, 2010
    Certificate of Occupancy

Phase 1 – October 1, 2010
Phase 2 – June 1, 2012

22. In the event construction of the site and buildings are abandoned (a period of six months or longer) the City may rezone the property to another appropriate district or use.

Signage

23. The single location of signage is located at the eastern entrance consisting of one monument sign 4 feet in height 6 feet in width as depicted in the Sign Elevation Detail by Mather Engineering Corporation.

Prohibited

24. No temporary or modular buildings are permitted on the property.

25. Billboards are prohibited on the property.

26. Banners and any other sign or advertising device not in accordance with the City's Land Development Regulations are prohibited.

JOHNSTON GROUP
DEVELOPMENT & DESIGN

751 SE Central Parkway
Townhome Multi-Family Residential

Project Narrative

Request: Rezoning/Small Scale Comprehensive Plan Amendment/ Site Plan Review
Address: 751 SE Central Parkway, Stuart FL
First Submittal Date: November 5, 2021
Second Submittal Date: January 7, 2022
Third Submittal Date: February 22, 2022
Fourth Submittal Date: March 25, 2022

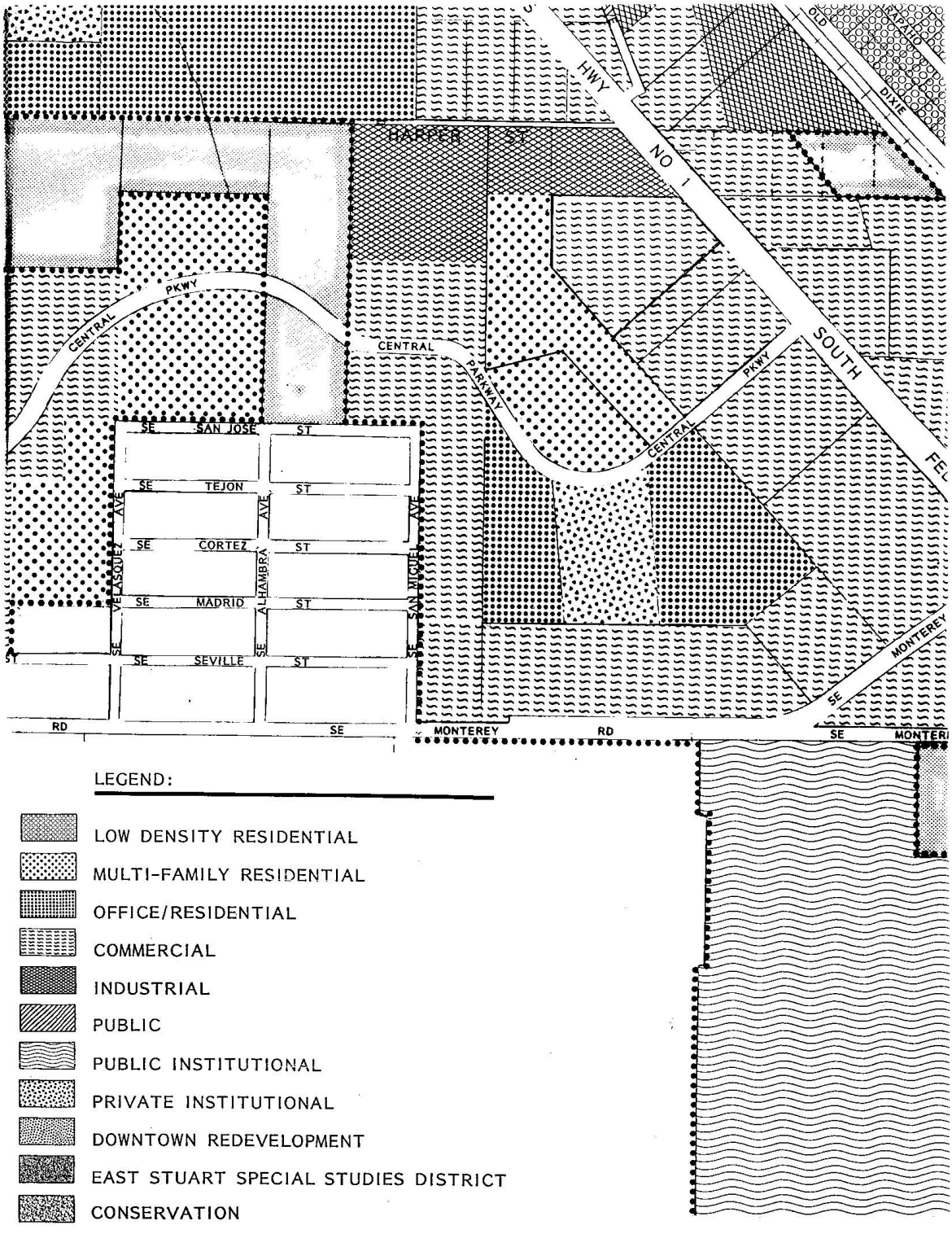
Overview of Requests & Property Introduction:

On behalf of the applicant, 751 SE Central, LLC, Johnston Group Development and Design has prepared and respectfully submits this request for a rezoning, small scale comprehensive plan amendment, and site plan review for a multifamily townhome project on the currently vacant site at 751 SE Central Parkway.

The subject property, consisting of approximately 4.88 acres (Property Control 09-38-41-011-000-00001-1), is located on the north side of SE Central Parkway, northeast of the intersection of SE Central Parkway and SE Rays Way, approximately 0.15 miles southwest of SE Federal Highway/US 1.

The property was originally approved in the early 1980s as Phase VI of the multi-family residential Towne Park North Condominium project under R-3 zoning with a Future Land Use (FLU) of Multi-Family Residential. The connection of the site to the surrounding residential exists through remaining utility and drainage easements. This phase of the development was never built, and the property sat vacant for some years. The property was developed as a church use by Abundant Ministries in the mid-1980s under the same R-3 zoning designation. In 1989, the City of Stuart adopted its first Comprehensive Plan, and visualizing the original intent of the property as residential, assigned a land use of Multi-Family Residential to the property (See **Image I** below).

Image I
Property's Original 1989 Future Land Use



Source: City Staff Report Regarding Comprehensive Plan Amendment from Multi-Family to Institutional

In 1993, the property was subject to a Land Use Amendment from Multi-Family Residential to Institutional as the church use was rendered non-conforming with the assigned Multi-Family Residential land use. This Land Use change from multi-family residential was highly controversial with the adjacent Towne Park residents. The zoning remained as R-3.

The Abundant Ministries church remained on site until the mid-2000s when it was demolished. In 2007, a national recession hit, devastating the homebuilding industry with many homebuilding businesses failing. During this time of recession, the property was sought out for commercial development as residential was not a viable development option at that time. The site was rezoned to Commercial Planned Unit Development (CPUD) with a future land use change to Commercial (C). A master plan for a 7-building commercial office project was approved in conjunction with the rezoning and comprehensive land use change, but this project was never constructed. Since that time, no other entitlements have been granted on the property, leaving the property vacant for another 15 years.

The City has observed both commercial and residential development along Central Parkway over the past 40 years but the subject parcel has remained vacant throughout most of this time. The appropriateness of the site for multi-family residential use is apparent with the original approval as Phase VI, VII and VIII of the Towne Park condominium development and the initial designation of Multi-Family Residential land use in the 1989 Comprehensive Plan.

The current proposal includes a small-scale comprehensive plan Future Land Use amendment from Commercial back to the originally intended Multi-Family Residential (MF-RES) and a rezoning request from CPUD to Residential Planned Unit Development (RPUD) to allow for the 100% residential use as proposed. The site plan application includes 60 two-story townhomes, averaging 1,800 SF in size, all rear loaded with an interior drive. Details on the site plan and its benefits to the City and surrounding communities can be found throughout this document.

Surrounding Uses:

The properties to the northeast and northwest are part of the original Towne Park North Condominium development; a project that initially included the subject parcel. To the south of the property, across SE Central Parkway, are a mix of residential and commercial uses including small professional office and an assisted living facility.

Community Meetings

The applicant had two meetings with the Towne Park Board, on November 17, 2021 and February 16, 2022, and an on site meeting with the Board president on March 24th, 2022. Renderings, site and landscape plans were shown at the meetings and the Civil Engineer attended on February 16th at the request of the Board to answer questions regarding drainage and sanitary connections. The Board was receptive of the project and the applicant has not received any negative feedback regarding the project.

Pre-Application Meetings

A series of pre-applications meetings were held between Johnston Group and City staff on May 15th, 2021, August 19th, 2021 and October 4th, 2021. The progression of the site plan was discussed

throughout these meetings. As the plan was modified, both the density the height decreased from three-story to a two-story townhome product to ensure compatibility with surrounding properties.

Site Design

The proposal includes 60 two-story townhomes, oriented around an internal access drive and connected by pedestrian sidewalks. The design incorporates amenity areas and balances the community and private use for future tenants.

Unit/Building Design

The townhome units are rear loaded with a two-car garage. The units range in size and include three and four bedrooms with the larger units on the ends of the building rows. The number of units in each building row vary; the proposal includes a four-, five-, six-, and seven-unit building type. The proposed separation of the buildings allows for the necessary fire separation by Code.

The units all have a front patio area, which depending on their location, have a different view. The units along SE Central Parkway have more of an urban setting, their patios areas having a view of the SE Central Parkway streetscape, separated via hedge and a low pedestrian height fence and individual unit gate. The internal units either have frontage along the lake or along the dense 30-foot landscape buffer, which serves as a garden type view.

Lot Configuration

The individual lots for the fee-simple townhomes shall fully match the building footprint including the individual patios, but not extend further outside of that footprint. Everything outside of the building footprint shall be dedicated as common area. A conceptual lot plan has been provided with the submittal plans. The flexibility from the R-3 code has been included within the provided table within this document as the individual lots will be much smaller than the standard R-3 zoning allowance, but typical for a townhome community within an RPUD.

Parking

Parking is spread throughout the community, including a two-car garage for each unit, pervious paver guest spaces interior to the property, and parallel parking along SE Central Parkway. With the unit's front doors facing this right-of-way, parallel parking is essential for guest parking access for the units. The on-street parallel parking was proposed as pervious pavers but were changed to standard asphalt as the applicant has been informed by Staff that the City does not allow for pervious pavers within the ROW. Pervious concrete must be pre-fabricated to meet City requirements; pre-fabricated pervious concrete is similar to pervious pavers in that they come in individual pieces. The maintenance of pervious concrete would be similar to pervious pavers, and therefore can also not be proposed within the ROW.

Pedestrian Connectivity

The proposed development incorporates internal pedestrian connectivity via sidewalks, which not only provide connection from the parking areas to the front doors but also provide for a recreational path. An eight-foot sidewalk is proposed along the entire length of SE Central Parkway, connecting the site to adjacent commercial uses on SE Federal Highway as well as to recreational uses including the dog park on SE Central Parkway. A six-foot sidewalk connects the eight-foot sidewalk to the internal site, with the remaining sidewalks at a comfortable 5-feet for residential use.

Beyond the requirement for including an eight-foot sidewalk along the property's boundaries, the applicant is proposing to construct a sidewalk within the ROW along the Towne Park property in order to prevent a gap in the sidewalk between the commercial property that is on the southwest corner of the Central Parkway and Dixie Highway intersection and the subject parcel. The existing right-of-way width along Towne Park will not accommodate a full 8-foot sidewalk; however there is sufficient room to accommodate a six-foot sidewalk to meet City regulations.

Recreation/Amenity

Although the PUD amenity guidelines are not mandatory, there are recommended PUD amenities demonstrates that the application meets the purpose of the Land Development Code (LDC). The amenities that this PUD are demonstrating include the following:

- Stormwater Detention
    - An addition 730% of stormwater capacity is proposed on site through the incorporation of three bioswales, pervious pavers and additional treatment within the retention lake. The planted bioswales are designed to remove silt and pollution from surface runoff water on the site. The curb line along the linear bioswale south of the lake area is a D-curb designed with rain garden style bunker grates rather than D-curb storm inlets, letting stormwater run directly from the internal roadway into the bioswale area to be pre-treated by natural means before entering the bioswale. Because ground water is so low, the raised weir in the lake allows for an excess treatment.
- Stormwater Treatment
    - The applicant is proposing three bio-swales within the project, including along the south side of the lake, south of Building 1 and east of the entry drive. The bioswale that is east of the entry drive will abut the public sidewalk. The bioswale will be planted with native landscaping including cypress and red maple trees and cordgrass and muhly grass which will create an aesthetic entry feature for the public walking past to enjoy along with the residents. The rain garden bunker provides pre-treatment with 60-90% removal of sediments and larger debris prior to entering the bioswale, rather than stormwater running directly into the bioswale from the roadway. The low impact development techniques reduce overall nitrogen and phosphorus discharge loads. The total site removes nitrogen and phosphorus, including 1.13 inches of treatment through the exfiltration trench and 1.31 inches of treatment through the retention pond. With the addition of a raised bleeder, extra nutrient loading reduction is proposed beyond what is required.
- Preserved Slash Pine Passive Park
    - The applicant has preserved 12 existing slash pines, including the largest pine tree on the site (24" diameter at breast height (dbh)) and is proposing a passive park area for the enjoyment of the Sailfish Cay community. The park is proposed with new native landscape in addition to the preserved slash pines, with pedestrian walkways, benches and doggy care stations.
- Significant Architecture
    - The applicant is proposing significant architectural features including vertical and horizontal projections and recesses, tower features, balconies and cladding. The applicant has incorporated shutters on the rear of the facades and landscape

screening on the sides. The balconies and Bahama shutters, along with the projections, create articulation throughout the facades that face the street and neighboring communities. The orientation of the buildings creates interaction with the public street, ensuring a connection between the development and the community.

- Enhanced pedestrian facilities
    - The applicant is proposing shade trees along the Central Parkway and interior sidewalks to create shaded walkways for pedestrians within the community and connecting to the Central Parkway right-of-way. A passive park with preserved slash pines and additional native vegetation is proposed within the community, connected with internal pathways. Benches and doggy stations are proposed within the passive park and throughout other areas of the community. The eight-foot sidewalk along Central Parkway with proposed shade trees encourage the use of public walkways while traveling to adjacent parks, commercial areas, or other amenities. The additional sidewalk connection along Towne Park will prevent a gap in the sidewalk that connects Central Parkway to Dixie Highway. The applicant will construct at its sole cost this additional sidewalk segment.
- Job Creation
    - The construction of this PUD will create 300-400 jobs over a two-year construction period.

The proposal includes a community pool area adjacent to the retention lake amenity, with associated restrooms and a mail room in a small cabana building.

Public Benefit

A large portion of the aforementioned PUD amenities benefit the public, including the sidewalk extension along the Towne Park right-of-way, bio-swales adjacent to the Central Parkway right-of-way, proposed shade trees along Central Parkway, and preservation of native landscape, but there are other proposed improvements which benefit the public. These include:

- Housing in close proximity to the downtown (within 2 miles). The housing provided will be in the top tier of workforce housing percentages (see housing section within this document) and will provide opportunities for families and individuals to live close to the downtown jobs, restaurants, parks and other amenities.
- The parallel parking along Central Parkway shall be open to the public on a first come first serve basis.
- The improvements to the Central Parkway right-of-way will include improvements to the stormwater drainage. Also included will be street beautification in the form of median landscape plantings, landscape islands along the parallel parking and street trees that provide shade for pedestrians along the eight-foot public sidewalk.

Landscape/Open Space

A dense landscape buffer with three-level landscape plantings (ground, mid, and canopy) is proposed around the internal property lines, separating the development from the existing residential development along the northeast and northwest of the property. An aluminum fence

has been included within the landscape buffer at the request of the Towne Park community. The purpose of the fencing is to ensure that residents and guests of Sailfish Cay do not park on the Towne Park property. A small hedge is proposed along SE Central Parkway, enough to create a separation between the public sidewalk and private patio while keeping the urban effect of public and private space blending into one. Littoral planting will be planted around the perimeter of the lake, including some littoral shelf areas to help provide a more natural shape to the retention lake. The site has been planted with 25% native vegetation, meeting the requirement of RPUDs in the City.

Twelve existing slash pines have been preserved on the site between Buildings 5 and 6, with the preserved area serving as a passive park with a pedestrian pathway, benches and doggy care stations. To properly mitigate any existing trees that have been removed and meet the City requirement, the applicant is proposing four 20' live oak trees which provide shade canopy for pedestrians along Central Parkway and within the development and proposing new slash pines within the buffer areas. The applicant is preserving existing trees within the buffer area and proposing trees of varying heights to better buffer the property from neighbors.

The bioswales will all be fully planted with native vegetation including muhly grass, cord grass, red maple trees and cypress trees. The bottom of the swale will not be visible through the plantings.

Wellfield Protection Area
A portion of the site is within a wellfield protection area. The project's Civil Engineer has reviewed the requirements for development within this area, including prohibited activities and has found that the requirements of per Section 4.147 of Martin County Code have been met, as referenced within the City of Stuart's Code of Ordinances. None of the prohibited activities apply, except for the inclusion of stormwater retention, but as there are no public potable water supply wells within 300 feet of the proposed retention area, the retention area is permitted at the proposed location.

Stormwater and Drainage
The proposed development will meet all requirements for stormwater retention and provide for an additional 730% of capacity. In addition to meeting requirements for the development's own drainage, the project's system also must account for an existing drainage easement in favor of Towne Park.

Beyond meeting standard drainage system techniques, the development is proposing low impact development techniques including pervious pavers, bioswales to allow for sheet flow to drain directly into bioswales rather than directly into inlets with additional treatment by rain garden bunker drains. The bioswales allow for additional pollution loading and additional stormwater capacity beyond the standard stormwater capacity requirement. The placement of the bio-swales, fully planted with native vegetation, will create an aesthetic focal point at the project's entrance.

Vehicle Access
The entry drive aligns with Rays Way. The entrance has a median separating the ingress and egress. The site is not gated which helps to prevent vehicle stacking at the entrances. The roadway is proposed a 20' width to meet the requirement for fire truck maneuvering.

Vehicular Traffic
Per the Traffic Engineer, the project has a de minimus impact, generating 41 AM peak hour trips and 46 PM peak hour trips. The entry drive, aligned with Rays Way, allows for both right and left turn movements for vehicles. The submitted long range analysis indicates the massive decrease in traffic that would result from the conversion from commercial to residential future land use, when looking at the maximum build out scenarios. Comparing the 2007 commercial approval to the proposed multi-family use, the current proposal would have 334 less daily trips, a 42.7% decrease in daily trips from the commercial use.

Compatibility with Surrounding Properties
The subject property was originally intended as multi-family residential, as made evident by the City's first Comprehensive Plan which gave the property a multi-family residential land use designation. The property was initially part of the Towne Park development and as such, the development has been designed with the intent to be compatible with the surrounding Towne Park development in terms of height and density. Even with consistent design, the applicant is still proposing a dense landscape buffer with fencing to maintain the privacy of the Towne Park residents by providing ample screening between the new and existing development. As previously stated, the fencing is proposed at the request of the Towne Park community.

The existing private recreation easement is proposed to be abandoned to allow for the landscape and fence within the buffer at the request of Towne Park. The guest parking spaces are fully screened with landscape material and aluminum fencing.

Focal Point
The focal point of the project's entrance is the lake feature, which will include littoral planting and a fountain in the center of the lake, and a planted bio swale along the south side. The median will contain a monument sign, with a specimen live oak tree and landscape design to provide for an aesthetic view into the project from the public realm. Pervious pavers and a paver crosswalk design are incorporated to create an enhanced visual feature and a bioswale planted with native vegetation at the east side of the project's entrance will further enhance the entry design.

Housing Component
This project is not receiving any grants or funding for the construction of affordable or attainable housing. The proposed zoning of Residential PUD and FLU of multi-family residential does not include any specific requirements for attainable housing, however based on anticipated sale prices, the assumed mortgage payment would be within the top tier of the workforce ("moderate income" housing range of 80-120% of the area median income (AMI).

According to the Federal Housing and Urban Development department, the current AMI of this area in Martin County (based on the Palm Coast HUD Metro Area) is $71,500 (data source: U.S. Department of Housing and Urban Development, 2021). Workforce housing is typically defined as housing that is attainable for households with incomes from 80 to 120 percent of the AMI which in this location in 2022 would be $57,200 - $85,800, although the exact percentages can vary between municipalities (some include up to 140% of the AMI as "workforce housing"). One hundred and twenty (120) percent of the applicable AMI is $85,800. Adjusted for a family of three, 120 percent of the AMI in Martin County is $77,280. According to the Florida Senate's definition of "affordable",

what is considered affordable for families within various income levels is monthly mortgage payments or rent including taxes and insurance that do not exceed 30 percent of annual gross income (Definition taken directly from Florida Senate Bill 1339 (2020)). Thirty percent of $77,280 is $23,184 which divided by 12 would be a monthly payment of $1,932. The estimated monthly mortgage for the proposed three bedroom townhomes, assuming standard down payment of 3% with a mortgage rate of 3.92% is approximately $1,926 which is within the 120% monthly payment. Although not within the defined affordable or attainable housing ranges, which are typically built through federal or local grants and viable only with grants and density bonuses, the proposed development is providing a number of units within this top tier of the 120% workforce range.

The demand for market rate housing is extremely high, with a vacancy rate of only 0.9% nation-wide (according to the US Census). The demand for housing has increased since the City set previous goals for providing a set number of residential units; this project will help meet the residential needs of the community. The proposed townhomes will be priced substantially lower than current asking prices for similarly sized single-family homes in Stuart, thereby providing a lower cost option. The local developer is proposing high end architecture, pervious pavers, and bio-swale systems with rain garden bunker inlets, which create an aesthetically designed community, but this comes at a cost. To offset the cost for improvements, with no grant funding, the units must be sold at a certain level to be viable.

Architecture

The proposed architectural style of the two-story townhomes is a transitional coastal design, intended to be consistent with the small-scale coastal vernacular throughout the City of Stuart. The architecture includes fenestration in the form of Bahama shutters, tower elements and cladding.

The building footprint include a 4-unit, 5-unit, 6-unit and 7-unit building type. Each building is comprised of a mixture of two or three types of units. A and B units are three-bedroom, with the larger end C units containing four bedrooms.

Each unit has a two-car garage in the rear. Every unit has a paver patio in the front yard, with room for sod and landscape to provide aesthetic feature to the front doorways. Each patio connects to a pedestrian sidewalk (internal or along Central Parkway).

The orientation of the front doors and patios provide a variety of views including lake view, urban street view, or garden landscape view along the dense buffer. The units present a different type of living experience for residents.

Sign Plan

One monument sign is proposed within the project's entry median. A sign elevation and rendering is attached as part of this application. The sign design is complimentary to the proposed architectural elevations and meets the City sign regulations.

Compliance Analysis

Comprehensive Plan Standards Compliance

Concurrency/Level of Service

The project complies with the Comprehensive plan standards, notably Policy A.A3.2 which directs development to areas where adequate utilities, services and schools exist. This site was initially planned as part of the development of Towne Park North Condominium project. There are existing water lines for connection, as the previous church site was serviced. The property has a lift station on-site that services the adjacent communities and will service this development. As no large extension to utility services will be required, the property is able to maintain the Level of Service standards adopted under the Comprehensive Plan.

Future Land Use Category/Maximum Build Out

The project was initially given a future land use category of multi-family residential when the City's first Comprehensive Plan was adopted in 1989. The existing Future Land Use (FLU) of Commercial was established in 2007 during a recession, when the site was rezoned to allow a commercial use, a development that was never built. Prior to that, the FLU was Institutional as part of a FLU amendment from multi-family residential to Institutional to make the church use conforming with the assigned land use. Before this Church use, the property had an approval for multi-family residential use. As the current FLU of Commercial only permits up to 15% of residential uses on the site per Policy 1.A 7.2 of the City's Comprehensive Plan, the proposed development requires a FLU amendment to allow for the original intended use of multi-family residential. The proposed FLU of multi-family residential is necessary to allow the 100% residential use as proposed with this development.

The Current FLU of Commercial permits up to 100% of Commercial Use FAR and up to 15% of residential use. As such, the site would be permitted up to 106,359.9 SF of commercial use and a density of 21 residential units. The applicant's proposal for multi-family residential FLU permits 30% of Commercial Use FAR and up to 100% of residential use at a maximum density of 30 dwelling units per acre (du/acre), which would permit up to 31,907.97 SF of commercial use and a maximum density of 146 residential units (30 du/acre). With this submittal, the applicant is proposing to re-establish the original intended use of multi-family, a use that is less intensive from a long range transportation analysis standpoint and is more compatible with the surrounding residential community. As detailed within the submitted Long Range Traffic Analysis, an amendment from Commercial to Multi-Family Residential results in a decrease in 11,151 daily trips based on maximum buildout of commercial compared to maximum build out of residential on the property. As the proposal for 60 units, at a density of 12.3 du/ac, is well under the maximum density as permitted by the City's Comprehensive Plan, the decrease in daily trips would be even greater. Although 30% of the site can be dedicated to commercial use, the applicant is not proposing any commercial use as part of this project.

Stormwater and Infrastructure
The project is meeting the intention of Element 4, Objective 4.A4D which states that "The City shall encourage Low Impact Development (LID) practices in all new development projects to reduce impacts, treat, infiltrate, and manage stormwater runoff flows caused by storms, urban runoff, and impervious surfaces, and require integration of site-specific LID best management practices." The applicant is proposing open joint pervious pavers in all guest parking spaces and within the entry drive, which allow for percolation of stormwater directly into the subsurface. Also proposed are three bio-swale areas which not only allow for site specific pollutant loading but also provide stormwater capacity beyond the required capacity for the site. A total of 730% additional stormwater capacity is proposed on site through the utilization of LID techniques as well as higher elevation weirs and bleeders in the retention pond.

Open Space Element
With the preservation of the 12 existing slash pines and creation of a passive park including the existing native vegetation with proposed new native vegetation, and the preservation of native vegetation within the buffers, the proposal meets the intent of Element 6, Objective 6.B1, Policy 6.B1.3 which promotes the preservation of native vegetation on the property.

Commercial to Residential Conversion
The proposed FLU amendment from commercial to multi-family residential complies with the intention of Objective 1.A5- *Residential Development* in that the proposed residential development shall provide housing opportunities for families who want to live in the City, including for individuals who work within the City limits. The residential use aligns with City of Stuart Policy 1.A5.5 by providing a community of housing for families. Not only does the proposal reestablish the original intention of the property, it also would transition the property from a use that could further increase the demand for housing within the city to that of a use which will provide housing opportunities in a demanding housing market. As a Commercial FLU predominantly permits commercial uses, any development within the Commercial FLU would potentially increase the number of commuters into the City which in turn increases traffic, as shown in the long range traffic analysis and comparing the traffic statement for the 2007 commercial approval to the submitted traffic statement for this project.

The amendment aligns with Objective 1.A5 which ensures land use compatibility, as the proposed residential development is situated adjacent to the Towne Park multi-family development, and as the project was initially planned as multi-family residential. Pedestrian sidewalks provide connectivity between the proposed development and these nearby commercial uses which encourages walking to other nearby amenities.

A FLU amendment to multi-family residential would allow the development to align with the intent of Policy 1.A5.1 to promote a more compact development pattern. By encouraging compact residential development, the proposal also aligns with Goal 2.A which discourages urban sprawl. As the site was initially planned for multi-family, this amendment restores the original intention of the property, a use that is compatible with the surrounding residential uses. The amendment as proposed would better align with the Goals of the Comprehensive Plan, proposing a less traffic intensive use while creating a family community within the city limits.

Urban Sprawl
Development on the subject parcel serves as an infill project, as the vacant site is surrounded by existing development. The site has been previously cleared for development, and was intended to be an extension of the Towne Park residential development that surrounds the northeast and northwest boundaries of the property. By facilitating infill development on this site, the applicant is meeting Objective 1.B1 of Element 1 of the City's Comprehensive Plan, which states that the City's goal is to "*Discourage urban sprawl by facilitating urban redevelopment and infill development of properties and planning for urban infill and redevelopment of lands located within Stuart in order to achieve a compact urban form."* The inclusion of an eight-foot public sidewalk on Central Parkway along this infill development also meets the intent of Policy 2.A1.8 of the Comprehensive Plan of decreasing vehicular traffic by providing means for pedestrian connection to nearby amenities. The extension of the sidewalk along Towne Park property further enhances pedestrian connectivity.

Soils and Topography
The soil characteristics of the site are common for this area. Per the Geotech report's findings, the soils on the site were found to be suitable for the proposed development. With respect to topography, the land is very typical of the area and matches the surrounding developments.

Floodplain
Within FEMA Flood Zone X, which is outside the area of minimal flood hazard, and not containing any native upland habitat, the property aligns with Objective 1.A3 of Element 1 of the City's Comprehensive Plan which aims to protect environmentally sensitive natural resources. The applicant is proposing minimal land clearing on this infill development, as the property has been previously developed. The proposed development is compatible with the existing state of the land, which has been previously developed.

Development Standards Compliance

The proposed development meets the standards of Chapter II, Section 2.07.00- *Designation of Planned Unit Development (PUD)* to provide an alternative residential development that is still consistent with the overall planning goals of the City's Comprehensive Plan.

The development meets the General requirements of the City's LDC including keeping within both the established density requirements and the maximum height limitations. The proposed development is well below the maximum permitted density and height for an RPUD, maintaining consistency with the surrounding properties.

As a PUD, the Code allows for flexibility from the City's straight zoning requirements. In order to stay within the intentions of the LDC, the proposed development meets the open space and landscape requirements of the code, and incorporates requirements such as bicycle parking and an 8 foot sidewalk along SE Central Parkway. The City's LDC does not have specific requirements for waivers from underlying zoning within RPUD's however the table below illustrates some areas where the flexibility of the LDC's PUD Section is incorporated within the site plan.

Areas of PUD Flexibility

There are several areas in the proposed development that the applicant has proposed variations from the regulations within the proposed underlying zoning of R-3 or elsewhere in the LDCs. The following is broken down into two tables, one for the overall parcel and the second for a further look at the individual lots for fee-simple townhomes.

For the overall lot the areas of flexibility include:

Area of Flexibility	Code Requirement	Provided	Reasoning and Mitigation
Sidewalk Width (interior)	8-feet	5-feet	The site is uniquely configured, and to make it viable with the two-story floor plan, some features had to be adjusted to fit the necessary pervious space and buffers. With the provision of a passive park which preserves existing slash pines, incorporation of low impact development techniques including pervious pavers and the elimination of a unit to better meet the intention of the City's code and Comprehensive Plan, the applicant kindly requests a waiver from this code. Five feet is a standard width in urban residential areas in many studies including those from the National Association of City Transportation Officials (NACTO) and as an experienced residential developer, the five foot width works well to accommodate pedestrian foot traffic. Any increase in sidewalks would further decrease pervious area on site. An 8-foot sidewalk is proposed along Central Parkway, and a six-foot sidewalk is proposed from

			the Central parkway sidewalk into the development. The applicant kindly requests flexibility from this regulation.
Maximum Impervious Area	65%	69.7%	The development is meeting the RPUD regulations for 30% open space. Open space is defined within the City's code as "an area not occupied by any structures or impervious surfaces. A body of water is considered impervious." Not counting the lake, the project meets this 30% open space requirement. The open space requirement for RPUD directly correlates to required pervious area per the definition. The requested variance is associated with the 65% impervious area as required by the underlying zoning. To mitigate for this variance request, the applicant has utilized low impact development (LID) techniques including pervious pavers, bio-swales and alternative curbing. The bio-swales and other features on site collect additional stormwater capacity in the amount of 730%, this capacity is beyond what is required for the site. The bio-swales have the added benefit above code requirements for pollutant loading and site specific infiltration beyond the typical stormwater retention area.

			The native vegetation within the bioswales allow for natural treatment of the stormwater runoff. The alternative curb inlet design along the south side of the lake allows for sheet flow to fall directly into the bioswale rather than into an inlet which leads directly into underground piping. The 730% additional capacity far exceeds the suggested additional 5% that is considered as a PUD amenity. The applicant respectfully requests a variance from the underlying zoning as many additional techniques have been utilized to treat and collect stormwater, exceeding what would be required if the site were utilizing standard zoning requirements.
Minimum Building Front Setback	25’	10’	The building facades are closer to the Central Parkway sidewalk in order to provide for a more urban interaction between the development and community. The intent of these units is to provide residents with an pedestrian focused experience, rather than set the units far back like in suburban areas. These residents can walk directly onto Central Parkway sidewalk and walk to nearby amenities.

Regarding the individual fee simple townhome lots within the RPUD, the following flexibility from the R-3 code apply:

Area of Flexibility	Code Requirement	Provided	Reasoning
Minimum Lot Area (SF)	10,000 SF	1,111– 1,333SF	The lots are configured for individual fee simple townhomes, following the exact footprint of the unit including the individual patio. The footprint varies depending on unit type with the maximum lot area of 1,333. All other areas will be dedicated as common area.
Minimum Lot Width (Feet)	100’	22.8 – 28’	The lots are configured for individual fee simple townhomes, following the exact footprint of the unit including the individual patio. The width varies depending on unit type with the maximum width of 28 feet.
Minimum Side Setback	15’ (0’ for devising walls)	0’	The side setback of the townhomes that are not devising walls is also proposed at 0’. The lots are configured as individual lots, following the exact footprint of the building with all other areas as common areas for common enjoyment. The balconies follow the same footprint as the individual patio on the ground floor.
Minimum Front Setback	25’	0’	The lots are configured for individual fee simple townhomes, following the exact footprint of the unit including the individual patio with all other areas dedicated as common area. The balconies follow the same footprint as the individual patio on the ground floor.
Minimum Rear Setback	20’	0’	

Concurrency/Level of Service
Aligning with the purpose and intent of Chapter IV, Section 4.02.02, and with Policy 4.A6.3, the existing public facilities and services have previously serviced this property. The proposed development will not exceed the current availability of capacity for potable water, sewer, solid waste, drainage, parks and recreation, transportation facilities and public educational facilities. The project shall meet the level of service standards established in Section 4.03.00 of Chapter IV. The project is within the TCEA Buffer area; the submitted traffic statement and analysis provides a thorough analysis of the transportation facility level of service.

The Martin County school district has already granted concurrency for the project, with a concurrency reservation of three years from date of issuance (December 3, 2024).

Summary

The proposed development meets the standards of the Zoning Code of the Comprehensive Plan, with proposed enhanced fenestrated architectural design, dense landscape of varying heights throughout the property, preserved native slash pines, and an additional 730% stormwater capacity on site. The project has been designed to be compatible with surrounding properties and to be compatible with the City of Stuart in general. The proposed FLU amendment restores the initially proposed use of multi-family on the property, with the support of the adjacent Towne Park community.

On behalf of the property owners, Johnston Group Development and Design respectfully request favorable review and consideration of this application for a rezoning, small scale comprehensive plan amendment, and site plan review for a townhome Residential PUD. Should you have any questions or require additional information, please do not hesitate to contact me at your convenience at (561) 691 4552 x105.

Sincerely,

Elizabeth S. Levesque, AICP
Development Manager

Martin County School District CIP

School Concurrency Determination

Project: **Sailfish Cay Townhomes**
Date Received: 12/3/2021
Project #: **09-38-41-011-000-0001-1**
Owner/Applicant: Johnston Group Development & Construction
Location: 751 SE Central Pkwy., Just West of US 1 on North side of Pkwy. 4.88 ac.

Planned Project Units: 61 Townhomes

Project Unit Yield by Type of School

School Type	Rate	Students
Elementary:	.0997	6
Middle School:	.0510	3
High School:	.0709	4
SGR =	**.2216**	**13**

Service Area Analysis:

CSA ANALYSIS	A	B	C	D	E	F	G	H
SCHOOLS	LOS CAPACITY	3 YR. ADDED CAPACITY	TOTAL LOS CAPACITY (A+B)	OCT. 15TH DATE CERTAIN 2021	PROJECTS w/RESERVED CAPACITY	THIS PROJECT DEMAND	TOTAL DEMAND (D+E+F)	AVAILABLE LOS CAPACITY (C - G)
Elementary								
JD Parker Elem (Z)	703	0	703	566	50	6	622	81
Pinewood Elem	750	0	750	747	57	0	804	-54
Port Salerno Elem	750	0	750	749	40	0	789	-39
Totals	2203	0	2203	2062	147	6	2215	-12
Adjacent South CSA	2301	0	2301	1432	81	6	1519	782
Middle (South CSA)								
Anderson Middle	1294	0	1294	1044	74	3	1121	173
High								
Martin County (Z)	2107	0	2107	2327	32	4	2363	-256
Adjacent North CSA	1914	0	1914	1428	172	4	1604	310

Concurrency Availability: Pursuant to the City, County, School District Interlocal Agreement for School Planning and Siting, Section 6.2.7 and Article 5 of the Martin County Land Development Regulations, Division 5, Section 5.83, the School District has determined that sufficient school capacity ***exists*** to serve the change in residential dwelling units proposed in this application to meet the school concurrency requirements under Florida Statute 163.3180.

School Capacity: This analysis is only used to serve as a review of the potential impact of the schools within the area of a future residential land use. School capacity *shall* be reserved for the above referenced project upon receipt of a final ordinance approval by the City of Stuart Commission. This concurrency reservation shall expire **three (3)** years from the date of issuance.

Comments: This determination does not guarantee that the students from the above referenced project will be assigned to attend a particular school(s). Please note if capacity demand should exceed existing availability, students may be housed in relocatable units. **Letter of No Objection w/Conditions:** ***'No Objection'*** with the following notations:

1. Elementary School Student Capacity transfer from Stuart Zone to adjacent South CSA to accommodate LOS
2. High School Student Capacity transfer from Stuart Zone to adjacent North CSA to accommodate LOS

School District Contact: Kimberly Everman, Capital Planner/Project Specialists **Date Issued:** 12/3/2021

Telephone: 772- 219-1200, Ext.30220 **email:** evermak@martinschools.org

Staff Review

A. Application

Sailfish Cay
Small Scale Future Land Use Amendment / Rezoning to RPUD
Application Number: Z21110003

Applicant	751 SE Central, LLC
Property Owner	Cypress Holding, LLC
Agent for Applicant	Johnston Group Development & Design
Project Manager	Erin Wohlitka, Senior Planner
Date of Report	March 21, 2022

B. Project Description

The intent of this application is to request a rezoning from a Commercial Planned Unit Development (CPUD) to a Residential Planned Unit Development (RPUD) and a Small-Scale Future Land Use Amendment from Commercial (C) to Multi-Family Residential (MF-RES) to allow the construction of 61 multifamily townhouse units on 4.88 acres of land located at 751 SE Central Boulevard.

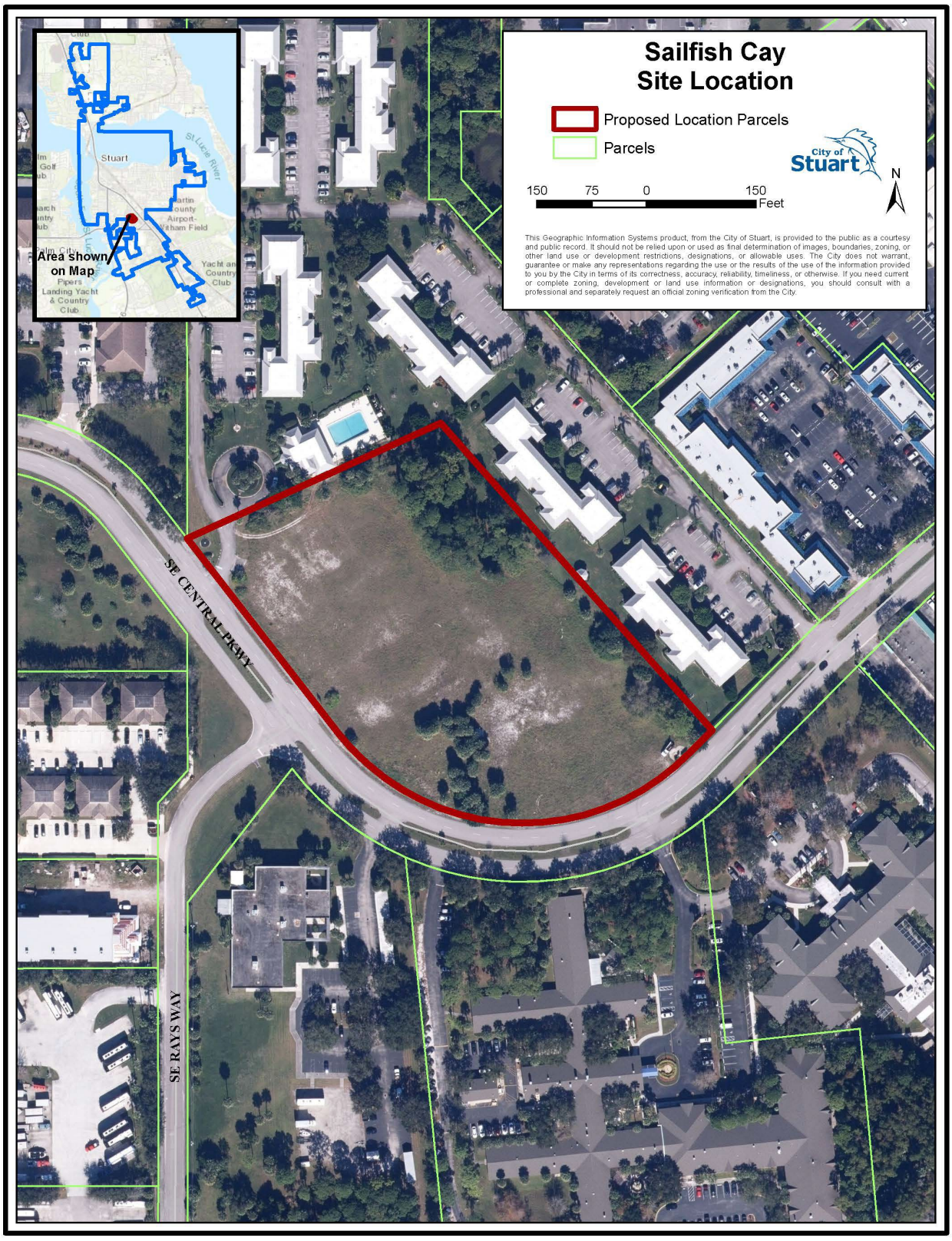
Address	751 SE Central Parkway
Parcel Number(s)	09-38-41-011-000-00001-1
Existing Zoning	Commercial Planned Unit Development (CPUD)
Future Land Use	Commercial (C)
Site Area (acres)	4.88 Acres
Present Use	Vacant
Proposed Land Use Designation	Multi-Family Residential (MF-RES)
Proposed Zoning District	Residential PUD (RPUD)
Proposed Use	Multi-Family Townhome Community

C. Location and Site Information

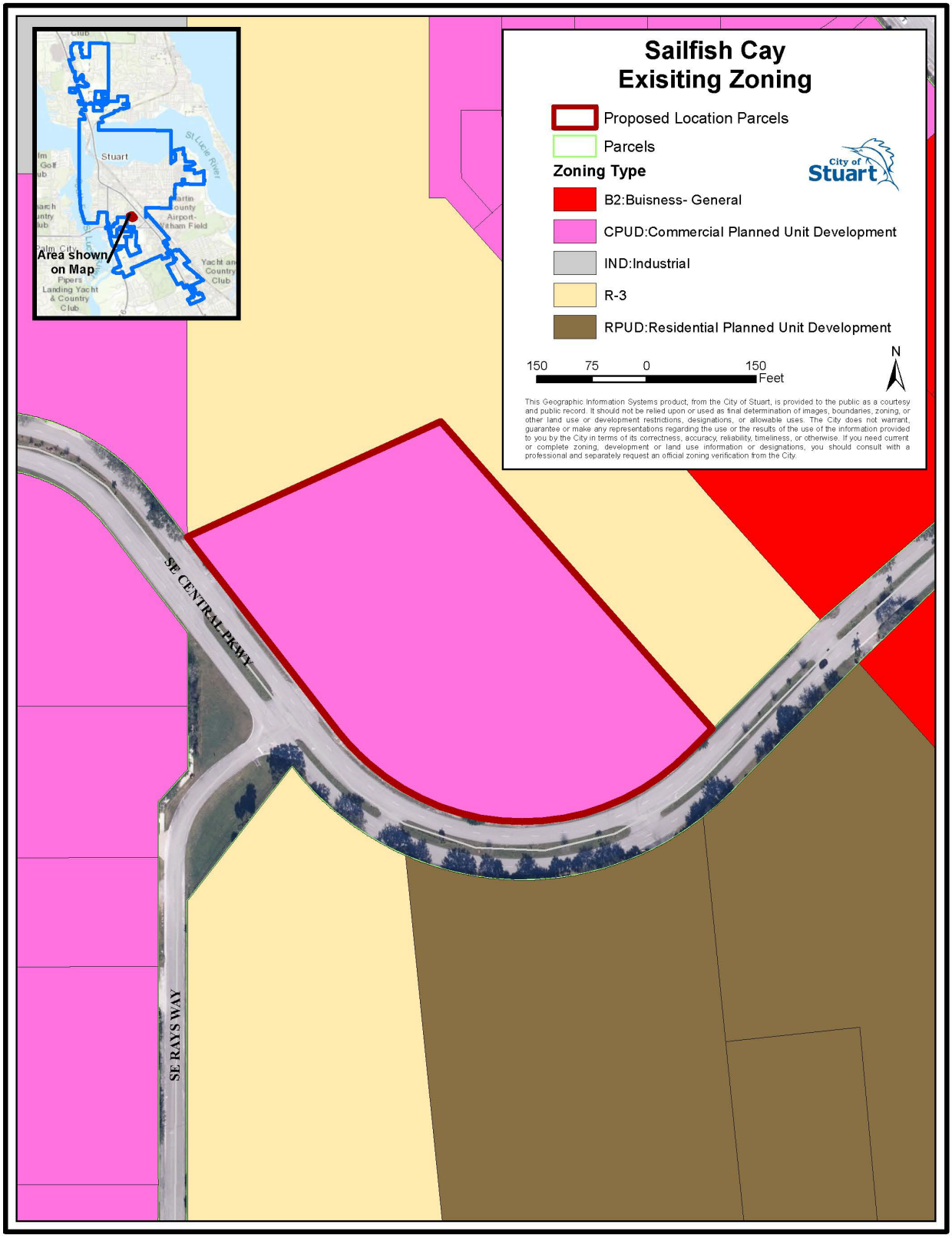
City Approvals	Building Department – Passed with Comments. Fire Department – Conceptually approved Public Works – Passed with Comments Traffic – Passed Environmental – Passed with Comments Zoning – Ongoing
Staff Recommendation (if final report)	N/A

Aerial Map

MAP

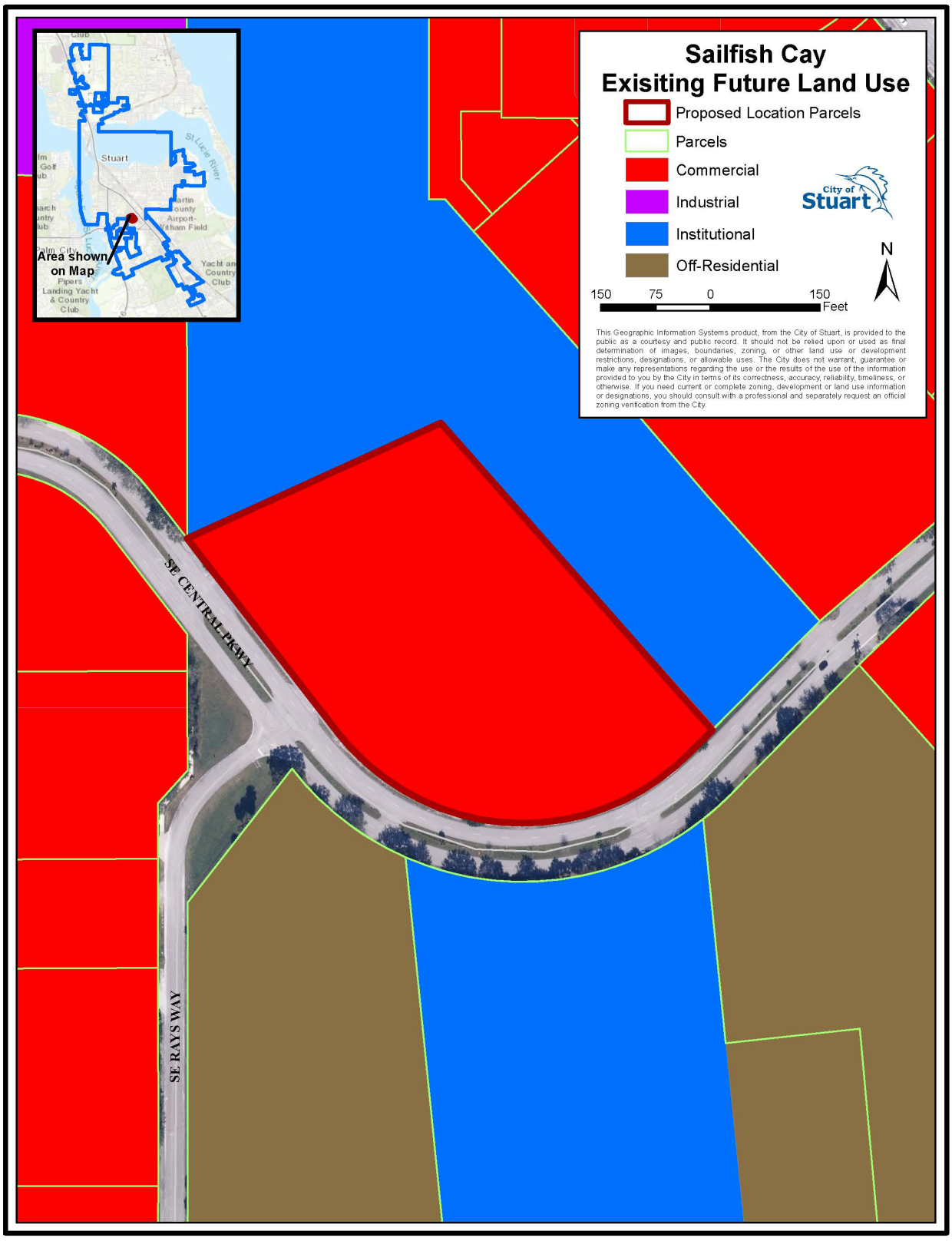


Existing Zoning
MAP



Existing Future Land Use

MAP



D. Determination of compliance with Comprehensive Plan

Staff is awaiting a project narrative from the Applicant that proves compliance with the Comprehensive Plan has been achieved with this proposal.

E. Review Comments

Zoning and Site Design – Ongoing

1. Please include within the project narrative:
    a) **SATISFIED.** The proposed Future Land Use change from Commercial to Multi Family Residential and compliance with specific applicable Comprehensive Plan policies, including job creation, urban sprawl, maximum build out, water/sewer availability, soils, FEMA Flood Plain, wetlands, and topography, condition, and sloping. Additionally, please address the loss of Commercial land to create additional Residential land.
    b) **SATISFIED.** Address concurrency and levels of service outlined within Section 4.02.00 of the City's Land Development Code
    c) **SATISFIED.** Address the current access to the Towne Park Condominiums on the subject property, whether it will continue to be maintained, who will maintain it, and whether it will be buffered and screened from the proposed project.
    d) **SATISFIED.** Address how the Applicant has provided the required PUD Amenities from the PUD Amenity Guidelines.
    e) **SATISFIED.** Please clarify what the existing lawn art is as noted on the landscape plan.
    f) **ONGOING.** Please include variances from the R-3 code in the narrative (i.e., providing 5-foot-wide sidewalks instead of required 6-foot-wide sidewalks, front and rear setbacks, etc.)
        i. **The Applicant has requested variances from code in regard to sidewalk width, maximum impervious surface coverage, and minimum front setback. See below:**
        ii. Maximum Amount of Impervious Surface Coverage, Open Space, and Native Vegetation Areas: Section 2.07.00(D)(4)(b) states, "not less than 30 percent of the RPUD shall be open space as defined herein. Required open space may include native vegetation areas and landscape buffers between the site and adjacent property; however, other required landscaping shall not count towards the open space requirement." The Applicant appears to be including lake area in open space. Please revise the landscape data to be consistent with and in conformance with the city code in regard to the correct calculation of open space. Section 2.07.00(D)(4)(d) states, "excluding wetlands defined by the SFWMD, not less than 25 percent of the total development site shall remain as undeveloped native vegetation

area. The required native vegetation area may include open space areas and the landscape buffer between the site and adjacent property; however, other required landscaping such as parking area interior landscaping shall not count towards the native vegetation requirement. The location of the native vegetation area shall be determined using a study of the site with consideration to the value of existing vegetation." The area of mature slash pines is the appropriate location for a native vegetation area per the requirements of City code. The applicant has an opportunity to provide a passive park underneath the mature slash pines that both Sailfish Cay and Towne Park residents may enjoy. This may be achieved creatively where the applicant might only lose a few units and create a duplex and a three-unit building for buildings 5 and 6, respectively. Staff's concerns with the amount of impervious land are echoed in comment #s 8 and 13 of the comment letter issued to the Applicant on 12/20/2021. Additionally, it is staff's position that the positioning of the back row of residential buildings, specifically where the slash pines exist, pinch the site and does not allow the site to meet the City's code in regard to pervious/impervious area, a 20-foot lake maintenance easement around the entirety of the proposed lake, required open space and native vegetation areas. Please evaluate all possible scenarios to keep this area in its natural state. **City staff appreciates the applicant's efforts to preserve the mature slash pine trees. Please provide on the site data the 30% open space requirement and provided open space percentage. The passive park and site buffers can be included within this area calculation. Please also provide the amount of native vegetation area (undeveloped landscape area – buffers, passive park, etc.)**

iii. Minimum Sidewalk Width: The City requires a minimum of 8-foot-wide sidewalks per Section 6.01.04 of the City's code. The Applicant has provided the minimum sidewalk width along Central Parkway and substandard sidewalks within the community. Staff does not support this request to vary from the code requirements as there is not sufficient justification provided for this waiver. **Staff appreciates the Applicant's efforts to provide a passive park with walkways. Sidewalk design needs minor revisions to ensure connectivity to the park, off-site, and the pool/clubhouse area (i.e., connectivity from Building 8 and other street facing units to internal amenities, gate from Building 3 to pool area).**

g) **SATISFIED.** Approximately half of the project site is located within a wellfield protection area. Please address in the narrative that the Applicant is meeting all requirements for development in this area.

2. **SATISFIED.** On Page 1 of the rezoning application, CPUD is checked where the Applicant is proposing to rezone to an RPUD. Please correct.

3. **SATISFIED.** Please advise if the on-street parking is to be considered a public amenity or to be utilized as guest parking only.
4. **SATISFIED.** Please advise if the ingress/egress easement is proposed to remain or if it will be relocated to avoid conflicts with the proposed hedge.
    a) Please clarify the rectangle near the ingress egress easement that is not labeled on the site survey, site plan, or landscape plan.
5. **WITHDRAWN as the Applicant has stated the need for this parking area.** Please consider adding additional multi-level landscape screening between the entrance to Towne Park Condominiums and the guest parking/residential unit on the northwestern corner of the property.
    a) Please remove the guest parking space adjacent to building 8 to allow for more landscape area.
6. **SATISFIED.** Please advise if the applicant intends to provide a sign easement for the Towne Park sign so that it can remain.
7. **SATISFIED.** Please dimension the guest parking spaces internal to the community on the site plan.
8. **See revised comment 1F.** Please consider the use of pervious pavers or pavement for the sidewalks and drive aisles to increase the percentage of pervious area on the subject property.
9. **PARTIALLY SATISFIED. Since the Applicant has the 20' LME in all areas where the pond has slopes, the retaining wall is sufficient in the proposed location. However, please provide an easement at the top of the wall for maintenance and label the width on the plan.** Please clarify why the 20' LME is not provided around the entire retention lake.
10. **SATISFIED.** Please clarify the material for the cross walks.
11. **PARTIALLY SATISFIED. The site triangle still appears limited looking southeast. The 10-foot setback from the ROW is maintained. Another option might be to bring the sidewalk and crosswalk closer to the edge of the travel lane so the stop bar can be moved forward.** Please clarify how the vehicles at the stop bar attempting to exit the community will not have their site blocked by the entry sign. It appears the sight triangle begins past the stop bar and might need to be relocated to begin at the stop bar.
12. Included on Landscape Plans. Please include proposed median landscape design as proposed within the cross-sections on the landscape plans.
13. **SATISFIED.** Please remove Building 6 (5 units) to preserve the large slash pine trees and create a passive park in this location as a PUD Amenity for the residents of Sailfish Cay.
14. **SATISFIED.** Please clarify on the monument sign rendering/plan how the entry sign will be lit.
15. **PARTIALLY SATISFIED. Please revise the ROW median plantings to at least show that the proposed trees are flowering trees and palm trees. Live oak trees do not satisfy the intent of this drawing and can be misleading as a presentation tool.** Prior to public hearing, provide a three-dimensional rendering of the main entrance showing the focal point, landscaping, and architecture.

16. Please include in the resubmittal a site details sheet including, but not limited to, the design, color, material of the following (if applicable): cabana, fencing, benches, wall sconces, and light poles.
17. **SATISFIED.** Per Section 6.04.06(5)(d), no parking spaces shall be located within the buffer. Please justify this variance from code with additional plantings in the southeast corner of the site.
18. **PARTIALLY SATISFIED. Please provide the calculation on the site plan site data table.** Please note, all RPUDs are required to have 25% native vegetation area, regardless if the site has previously been utilized for other purposes. Please depict on the landscape plans the minimum of 25% native vegetation area as defined within Sec. 2.07.00(4)(d) of the City's LDC.
19. **PARTIALLY SATISFIED. Please provide a detail of the lift station that includes all requested information, design specs of the fence and gate (and call out the location of the rolling gate on the engineering plan), and the hedge height, spacing, etc. at time of planting for staff review.** The lift station requires a 6-foot-tall fence, a berm or hedge to conceal the area. The existing lift station is currently screened from the right of way. Please provide screening from the right of way to continue screening from public view**.** Please depict, at a minimum, the required lift station screening per Sec. 6.02.01 of the City's LDC.
20. **SATISFIED.** Please consider pervious open joint pavers in this location to increase pervious percentages. Please include pavers at the entrance drive of the site to increase visual interest, with a different pattern of pavers proposed to delineate the pedestrian crossing in front of the entrance drive.
21. **SATISFIED.** Please propose lighting along the sidewalk adjacent to the Central Parkway right-of-way.
22. **SATISFIED.** Please revise the project narrative to include the information discussed in the comment response letter to expand on the statement given regarding attainable housing. The applicant states within the submitted justification statement that the FLU amendment will provide residences for those who work within the City of Stuart and would serve to alleviate some of the City's commuter congestion. Please provide an analysis that allows this project to provide attainable housing to the workforce in Martin County. Please include in the analysis that individuals or households at AMI level in Martin County can purchase unit(s) within this proposed development.
23. **ONGOING. Please show that the easement is "to be abandoned" on any applicable plans. Also, staff has not received a letter of support from the Towne Park Condominium Association. Please provide. A condition of approval will be drafted to abandon all such easements proposed to be abandoned prior to plat approval.** ORB 706 PG 839 references a perpetual and exclusive recreation easement for the benefit of the Town Parke Condominium Association and its successors and assigns to be used for recreational and park purposes only. The easement shall be covenants running with the land and shall benefit and burden the parties hereto (including all unit owners in Towne

Park North Condominium) and each of their successors and assigns. Furthermore, the recorded easement document states that the developer of Towne Park is able to use this area to compute unit density for the Town Parke Condominium project. Please address how the Applicant intends to provide recreational and park benefits to the Sailfish Cay and Towne Park residents in this area and clarify that the" this area has not been utilized in the past for unit density for Towne Park as the Applicant is utilizing the gross area of the project site to calculate density. in terms of utilizing the area for unit density. Finally, please provide a letter from the Towne Park Condominium Association stating they have no objection to the Applicant's proposal.

24. **Please provide a sidewalk from building 8 to internal sidewalks.**
25. **Please provide grasses/groundcover in addition to trees and sod in the ROW medians.**
26. **Please ensure that the sewer line under trees in buffer and behind buildings 6 & 7 will not conflict with proposed landscaping.**
27. **Please cure the condition of the new 6-foot-wide sidewalk conflict with the fire hydrant in between buildings 11 and 12 (updated plan sent by email last week)**
28. **Please provide additional grasses and groundcover at the entry median near the monument sign.**
29. **Please remove all references to gated gentry on applicable plans (i.e. sign plan).**
30. **Please add a larger variety of plantings in the bioswale areas (especially those visible from the project entrance).**
31. **Please note, a condition of approval will be drafted requiring the Applicant and its successors or assigns to construct and maintain in perpetuity all proposed right-of-way improvements in accordance with the approved plans.**

Architecture - Passed

32. **The Applicant has stated that in their experience, varying paint colors do not provide an amenity but are rather detrimental to the sale of the units; as such, Staff has withdrawn this comment.** Please provide different color palettes for the buildings to increase a sense of place and variation from building to building. Staff appreciates the attention to detail regarding architecture proposed along the building frontages. Please evaluate opportunities to provide different textures, colors, and materials along the side and rear elevations of the townhouse units.
33. **SATISFIED.** A rendering was provided of the rear of the cabana building. Four sided elevations are required. Please provide architectural elevations of the cabana building.

Engineering – Drainage/Stormwater – Failed

34. **SATISFIED.** A brief written description of the location and purpose of the project, the existing conditions of the site, the existing conditions surrounding the site, and the proposed improvements.
35. **SATISFIED.** A detailed analysis of the perimeter conditions of the site to establish any drainage flows on or off of the site, including:

a. Topographic map with one foot contour lines extending a minimum of 200 feet off of the project site.

b. A plan showing adjacent wetlands, adjacent developments, or any significant adjacent features.

c. A written narrative describing the perimeter conditions along each side of the project with statements about the presence or absence of on or off-site flows.

d. A written description and analysis of the outfall route of the project to the ultimate receiving body. The outfall route may be the limiting factor for the project discharge rate. If a positive legal outfall for the project cannot be established, the project must be designed to hold the 100-year storm on site.

36. **SATISFIED.** A detailed analysis of the interior conditions of the site to establish the predevelopment rate and volume of runoff from the site, including:

    a. Topographic map with one foot contour lines,

    b. Soils description and map, land cover description and map, groundwater table analysis, wetlands analysis and map,

    c. A plan showing existing development, FEMA flood zones, location relative to the Coastal High Hazard Area, or any other significant onsite features.

    d. A written narrative describing the interior conditions of the project.

    e. Calculations to establish the predevelopment runoff rate and volume. The Rational Formula is generally not an acceptable calculation.

37. **SATISFIED.** A written description and analysis of the water quality treatment to be used on the project.
38. **SATISFIED.** Provide hydrant coverage circles around the proposed fire hydrant locations so that building coverage criteria can be verified.
39. **SATISFIED.** Provide documentation that the existing sanitary lift station has additional capacity for the proposed development of this site.
40. **ADDRESSED.** The revised plan still shows the sewer services on the north and east sides of the project flowing to a terminal manhole in front of building #8. Update the sewer flow direction adjacent to buildings 7 and 8 as it is currently depicting flow to a terminal manhole.
41. **ADDRESSED.** The revised plan still shows the sewer services on the north and east sides of the project flowing to a terminal manhole in front of building #8. Verify the sewer flow for the project. The existing lift station is located at the southeast corner of the site, however flow is depicted flowing to the north property line.
42. **ADDRESSED.** Please clarify if the lift station easement is being revised. Please clarify what the dashed line is indicating. Provide clarification on the easement around the lift station. There is an easement that the southeast corner of building 12 appears to encroach on.

43. **ONGOING.** Provide more information on the drainage patterns for this site.
    a) How much offsite area is discharging through this site via the exiting drainage easement.
    b) **ONGOING. The Towne Park North site needs to be provided as a node in the model so that pre and post elevations can be evaluated. The applicant has modeled the discharge and made reference to adding a flap gate to the structure that accepts off-site drainage. While this would prevent stormwater from backing up into the adjacent site, we do not have enough information to evaluate if the stages on the Towne Park North site would be increased over the current condition. By evaluation of the 25-year 3-day storm on-site, the stage increases from 12.09 to 12.6, which may translate to a stage increase offsite as well.** It appears the offsite flow will be discharged to the proposed pond and comingled with the development's stormwater. Existing and proposed elevations upstream must be evaluated.
44. SATISFIED. Label the proposed control structure on the plan.
45. NO FURTHER COMMENT. Reroute the discharge piping to minimize the private conveyance system within the public right of way.
46. **ONGOING. See comment 11.** Please evaluate the opportunity to elongate the entrance median (landscape island) to push the specimen tree and entrance sign farther back to allow for additional site visibility**.** Site visibility triangles are called out the entrance, however the triangles are not showing up.
47. **WITHDRAWN as a waiver is requested by Applicant.** All interior sidewalks shall be a minimum of 6 feet wide per City code.
48. **WITHDRAWN as project is no longer a gated community.** Will the call box open both sliding gates simultaneously?
49. **SATISFIED.** Provide autoturn exhibits demonstrating fire truck and garbage truck routes through the site.
50. **SATISFIED.** Update the typical lake cross section to reflect the location of the sidewalk.
51. **ONGOING. Control elevation is still in conflict. The plan shows 8.0 in the typical lake section. The control structure detail and stormwater report both reflect 8.5.** The plan shows a control elevation of 9.5 NAVD versus the stormwater report of 8.0 NAVD.
52. **NEW COMMENTS 3/21/22 RE: SURFACE WATER MANAGEMENT REPORT**
    a) **ONGOING. Staff's consultant agrees that the Geotech report supports a seasonal high-water table of 8.5. This does however create an issue in that the tailwater condition is 10. The stormwater report does not show recovery below 10. Additional information will need to be added to the stormwater model to reflect recovery through soil permeability to recover below the tailwater condition down to the seasonal high-water table.** Section 3.5 – the control elevation of 8.0 NAVD is supported by the geotechnical report, however it is lower than the downstream elevation shown on page 18 of the report which summarizes adjacent properties ERPs. Has the SFWMD accepted the elevation of 8?

b) **ONGOING. Exfiltration trench volume has been verified. Show on the plan where the 590 LF of trench will be located.** Section 3.7 – Please verify the treatment volume from BMP Trains. It appears it should be 1.083 ac-ft

c) **ONGOING. See revised Comment 35.b.** Section 3.9 – please clearly demonstrate how the 9.26 cfs from Towne Park Condominiums is addressed in the ICPR model. Page 39 of the report has an external hydrograph that appears to be this flow; however, the input report does not show how it is connected to the system. Further the referenced hydrograph on page 39 shows a peak flow of 9.18 instead of 9.26.

d) **ONGOING. See revised Comment 35.b.** Related to comment e) above, since the discharge from Towne Park Condominiums is routed thru this site and is impacted by the lake control structure, an upstream node to represent Towne Park needs to be added to document the upstream stages do not rise from pre to post condition.

Building Department – Passed with Comments

53. **NO FURTHER COMMENT.** Permitting will be considered multi-family unless definition of townhouse is followed. FBC Ch.2: Townhouse means a single-family dwelling unit not exceeding three stories in height constructed in a group of two or more attached units with property lines separating such units in which extends from the foundation to roof and with a yard or public way on not less than two sides.

Environmental – Passed with Comments – Revised 3.21.22

54. Section 5.01.00 - Complete.
55. Section 5.02.00 – Incomplete. Environmental Assessment Report – Additional information is needed on the listed species habitat, survey methodology and the location of transects conducted, along with any copies of coordination conducted with US Fish and Wildlife Service (USFWS) and/or Florida Fish and Wildlife Commission (FWC).
    a) February 2022 Update: Incomplete. The applicant claims that a listed species survey cannot be conducted until closer to construction due to survey expiration dates; however, a review of listed species habitat, preliminary surveys and a description of methodology can be conducted and are required. Additionally, coordination with USFWS or FWC has not been provided or discussed. An updated environmental assessment report with this additional information is needed.
        i. **ONGOING. Updated report revised 2/17/22 states that a gopher tortoise habitat was observed onsite but that a 100% gopher tortoise survey conducted by a FWCC Authorized Agent will be required within 90 days of any clearing or grading activity occurring onsite. Please ensure that all documents do not conflict and that a better clarification is provided.**
56. Section 5.05.00 – Incomplete. Trees – Tree inventory data was not provided.
    a) February 2022 Update: Complete.

57. Section 5.07.00 Incomplete. Floodplains and Flood Damage Prevention – No data on on-site floodplains have been provided.
    a) February 2022 Update: Complete.

City of Stuart Public Works – Passed with Comments

58. **This review is not for construction.**
59. **The City of Stuart Utility Availability Fees – all fees must be paid prior to the activation of utility service(s). Please contact Marc Rogolino @ (772)-221-4700 for calculation of fees.**
60. **The Developer is responsible for all costs associated with the construction of proposed utilities (water, sanitary sewer, etc.) & Public Right-of-way improvements.**
61. **Engineer of Record to provide a project cost estimate for (Water & Sanitary sewer items broken out separately) for the calculating of required PW Dept. Inspection fees. Public Works Dept. inspection fees must be paid prior to activation of water service.**
62. **All construction pertinent to this Department shall be installed, inspected, and tested in accordance with the City of Stuart Minimum Design and Construction Standards latest edition and the City of Stuart Specifications and Ordinances where applicable. In case of discrepancies between the construction plans and aforementioned manuals, the most restrictive shall apply.**
63. **All plans to be reviewed by this Department shall be routed through the Permit Technician in the Development Department. Approval by this department shall not be construed as authority to violate, cancel, alter or set aside any of the provisions of the City Code. Approval shall not prevent this department from thereafter requiring a correction of errors in plans, construction or violation of City Code.**
64. **Code compliance rests with the design engineer.**

Fire Department – CONCEPTUALLY APPROVED. Construction plans shall conform with the Florida Fire Prevention Code

65. **SATISFIED.** Show on plans how buildings conform with NFPA 1, 18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

City of Stuart
Development Department
121 SW Flagler Avenue
Stuart, FL 34994
Ph. 772-288-5300
Fax 772-288-5388

AFFIDAVIT ATTESTING TO NOTIFICATION

Elizabeth Levesque, being first duly sworn, depose(s) and say(s):

That (~~I am~~ / we are) the owner(s) or ~~petitioner(s) of~~ the following described property which constitutes the location for which notification is required:

751 SE Central Parkway, Stuart, FL, 34994

That a copy of the notice was sent by regular U.S. Mail on March 30, 2022 to the property owners within 300 feet of the subject property.

That a list of the property owners and their addresses is on file with the City of Stuart; and

That a photograph showing the placement of the notification sign be made a part of this Affidavit.

_____
SIGNED (PROPERTY OWNER / AUTHORIZED AGENT)

_____
SIGNED (PROPERTY OWNER / AUTHORIZED AGENT)

STATE OF FLORIDA, COUNTY OF Palm Beach
Sworn and subscribed before me by means of X physical presence or ___ online notarization, this 30th day of March, 2022 By Elizabeth Levesque.
Personally Known OR Produced Identification

G.T. Arnold
Type of Identification Produced:

Notary Public, State of FL
(Notary Seal)

GREGORY T. ARNOLD
My Commission Expires:
Expires September 12, 2022
Bonded Thru Troy Fain Insurance 800-385-7019

CITY OF STUART, FLORIDA
AGENDA ITEM REQUEST
Local Planning Agency

Meeting Date: 4/14/2022 **Prepared by:** Tom Reetz

Title of Item:
ATLANTIC POINT MARINA - FUTURE LAND USE MAP CHANGE - MIDDLE ISLAND MANAGEMENT & DEVELOPMENT, LLC

ORDINANCE: 2485-2022; AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AMENDING THE FUTURE LAND USE MAP OF THE CITY'S COMPREHENSIVE PLAN THEREBY CHANGING THE FUTURE LAND USE DESIGNATION FROM "INDUSTRIAL" TO "MARINE INDUSTRIAL" FOR MIDDLE ISLAND MANAGEMENT AND DEVELOPMENT, LLC OWNER OF PROPERTY LOCATED AT 75 NW FLAGLER AVENUE, ADJACENT TO THE ST. LUCIE RIVER, PARALLEL TO NW FLAGLER AVENUE, NORTH DIXIE HIGHWAY, AND THE FEC RAILWAY, AS DESCRIBED WITHIN THE ATTACHED LEGAL DESCRIPTION; PROVIDING AN EFFECTIVE DATE;; AND FOR OTHER PURPOSES.

Summary Explanation/Background Information on Agenda Request:

"Small Scale" Comprehensive Plan Amendment Land Use Map change from Industrial to Marine/Industrial

The Industrial land use designation does not specifically reference restaurant or marina use within the Comp Plan policy language. To address this matter, the applicant is requesting consideration of a small-scale comp plan amendment to change the land use to Marine/Industrial. This waterfront land use would accommodate the proposal. This land use category is a waterfront type district which permits the continuation of industrial/marine uses while encouraging mixed-use development including multi-family residential; commercial; office; lodging; marinas; and civic uses. Section 11.01.07.G. includes specific policy provisions required to be considered when assessing a request for a small-scale comprehensive plan amendment. Specifically, the local planning agency shall consider certain criteria: **See APM Staff Report for specific policy provisions and consistency with the Comprehensive Plan.**

Major Urban Code Conditional Use Approval (To be considered by the Community Redevelopment Board) - Project Summary

The applicant, Middle Island Management & Development, LLC, is requesting a Major Urban Code Conditional use approval as per Section 3.01.06 of the City of Stuart Land Development Code. The applicant has recently purchased the property, and if granted, the conditional use would allow for the development of an Marine-Industrial waterfront project with commercial uses consisting of a 109,708 square foot Boat Barn, a 6,510 square foot, one story restaurant facility, a 2,000 square foot, two story ship store, a 2,000 square foot, two story fitness center, a pool facility, a lighthouse architectural feature (if approved as Public Art) and both dry and wet boat storage in the City's Community Redevelopment Area north of the old Roosevelt Bridge.

The project requires six (6) variances from the urban code: 1) to the maximum cumulative front building facade width of 160 feet measured parallel to the nearest body of water. 2) continuous building facade of more than 100 feet in width without providing an additional vista to the river, 3) an increase in the maximum height from 3 stories and 35 feet to 4 stories and 45 feet, 4) not providing balconies and balcony rails on the waterfront side of a building 5) from architectural standards and regulations such as building wall materials and other design standards to include tilt-up wall construction of a boat barn with a mansard style roof and 6) a reduction in the side setback from 10 feet to 2 feet for an existing 1,570

square foot one story brick building. In addition to the urban code variance requests, a variance is requested for sidewalks that are 6 feet rather than 8 feet in width along N.W. Flagler Avenue right-of-way.

In lieu of not providing an additional vista to the river, the developer has provided vistas on the north and south sides of the project to pedestrians utilizing the waterside trail. Pedestrians will be able to walk into the site on the south side and utilize the restaurant and ship store facilities that will have dramatic views of the adjacent waterway. The design of the architecture on the boat barn with horizontal lines such as wave action and the curving roof line and enhanced planters and green wall section are provided in the lower portion of the building facade. The ship store and yacht sales building have windows at each floor level in addition to colonnades and green walls that breakup the facades. The waterfront side has vertical wood louvers that fill the arches of the barrel-vault roof trusses and is completely open-air space with no walls or windows.

The applicant is permitted to construct property at a maximum height of three stories or 35 feet in height. If 50% or more of the building is residential or hotel, a fourth story is permitted. However, the applicant is not proposing such uses. The proposed building height of a four-story building and 45 feet requires a waiver of the urban code. The proposal includes an equivalent 4-story height boat barn, measured at 45 feet from the finished floor to the bottom of the mansard roof. The total height of the boat barn building, including roof access, should not exceed 60 feet.

The reduction of side setback from 10 to 2 feet is for an existing brick building on the north end of the site is intended to be used for storage.

Please note that the City is not in support of the requested waiver to the installation of 6 foot sidewalks. Where reasonable, staff recommends 8’ sidewalks along Flagler Avenue in front of and internal to the site.

Stormwater treatment design and low impact development approaches have been achieved in project design and detailed as follows: a. Thirteen tree boxes are proposed around the restaurant and pool area. b. A rain garden is proposed in dry detention area (see post development drainage plan.) c. Bio-retention swales are proposed in dry detention areas 2, 4, and 5. (see post development drainage plan) d. Green walls are proposed at the Boat Barn. (see architectural plans) e. Approximately 572 linear feet of exfiltration trench is proposed. (see post development drainage plan) f. All proposed sidewalks are pervious concrete. Approximately 0.56 acres of proposed parking is pervious pavement. g. A nutrient separating baffle box is proposed in dry detention area 6. (see post development drainage plan)

Funding Source:

N/A

Recommended Action:

Motion to recommend approval of Ord: 2485-2022 and moving the item forward to the CRB and City Commission.

The staff is requesting the Local Planning Agency make an advisory recommendation to the City Commission as to the need and justification for the land use change and as to the relationship of the proposed change to the goals, objectives and policies of the Comprehensive Plan and the Land Development Regulations.

ATTACHMENTS:

1. A.1 ORDINANCE 2485-2022 Atlantic Point Marina
2. A.2 PROPOSED RESOLUTION R43-2022 Atlantic Point Marina
3. A.3 PROPOSED RESOLUTION R43-2022 Exhibit D
4. B.1 APM Staff Report for agenda

5. B.2 APM Staff Review for agenda
6. B.3 FLU Checklist for LPA agenda - Final
7. C.1 Small Scale Comp Plan Amendment Application
8. D.1 Land Use Traffic Analysis S&S 3-9-2022 for agenda
9. D.2 Drainage Report - Revised
10. D.3 Martin County - Policy Approval

BEFORE THE CITY COMMISSION

CITY OF STUART, FLORIDA

ORDINANCE NUMBER 2485-2022

* * * * *

AN ORDINANCE OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AMENDING THE FUTURE LAND USE MAP OF THE CITY'S COMPREHENSIVE PLAN THEREBY CHANGING THE FUTURE LAND USE DESIGNATION FROM "INDUSTRIAL" TO "MARINE INDUSTRIAL" FOR MIDDLE ISLAND MANAGEMENT AND DEVELOPMENT, LLC OWNER OF PROPERTY LOCATED AT 75 NW FLAGLER AVENUE, ADJACENT TO THE ST. LUCIE RIVER, PARALLEL TO NW FLAGLER AVENUE, NORTH DIXIE HIGHWAY, AND THE FEC RAILWAY, AS DESCRIBED WITHIN THE ATTACHED LEGAL DESCRIPTION; PROVIDING AN EFFECTIVE DATE;; AND FOR OTHER PURPOSES.

* * * * *

WHEREAS, the City Commission held a properly noticed hearing at a regularly scheduled City Commission to consider the application by Cuozzo Planning Solutions, Inc. representing Middle Island Management & Development LLC (owner), for a 10.81-acre parcel of land;

WHEREAS, the Local Planning Agency held a properly noticed hearing at a regularly scheduled meeting to consider the application of the Petitioner and recommended approval of the Small-scale Land Use change on April 14, 2022; and

WHEREAS, on May 9, 2022, the City Commission held a properly noticed hearing at a regularly scheduled City Commission to consider the application by the Owner and Applicant, to consider the Small-Scale Comprehensive Plan land use change, and

WHEREAS, the City of Stuart has determined the need to change the Future Land Use for said lands; and

WHEREAS, the City Commission, has considered the Petitioner's voluntary request for land use designations, and has also considered the recommendation of the City staff.

WHEREAS, at the hearing the applicant showed by substantial competent evidence that the application is consistent with the Stuart Comprehensive Plan, and the Land Development Code of the City, and with the procedural requirements of law; and

WHEREAS, the foregoing recitals are true and adopted as findings of fact and conclusions of law.

WHEREAS, the property is legally described in **"Exhibit A"** of this ordinance. A map depicting the property is attached hereto as **Exhibit "B"** and made a part hereof by reference;

NOW THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA THAT:

SECTION 1: The Future Land Use designation in the City's Comprehensive Land Use Plan shall be established as "Marine Industrial".

SECTION 2: This ordinance becomes effective upon adoption.

SECTION 3: Except as otherwise provided herein, no development permits, site permits, or building permits shall be issued by the City except in compliance with the City's Land Development Code.

SECTION 4: All ordinances or parts of ordinances in conflict with this ordinance

or any part thereof is hereby repealed to the extent of such conflict. If any provision of this ordinance conflicts with any contractual provision between the City and the developer of the site, this ordinance shall prevail.

SECTION 5: If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are declared severable.

SECTION 6: This ordinance shall be effective upon the following to occur: adoption by the City Commission, and proper execution and acceptance by the Owner.

SECTION 7: The complete execution and recording of this Ordinance by the City Clerk shall occur no later than 60 days from the date of this approval, failing which this ordinance shall be void.

SECTION 8: Upon complete execution of this Ordinance, including the Acceptance and Agreement by the Owner, the City Clerk is directed to record a Certified Copy of the same in the Public Records of Martin County, Florida.

Passed on first reading the __ day of _____ 2022.

Commissioner _____ offered the foregoing Ordinance and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

Commissioner _____ offered the foregoing Resolution and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

	YES	NO	ABSENT	ABSTAIN
MERRITT MATHESON, MAYOR				
TROY MCDONALD, VICE MAYOR				
BECKY BRUNER, COMMISSIONER				
EULA R. CLARKE, COMMISSIONER				
MIKE MEIER, COMMISSIONER				

ADOPTED on second and final reading this _____day of _____, 2022.

ATTEST:

_____ _____
MARY R. KINDEL MERRITT MATHESON
CITY CLERK MAYOR

APPROVED AS TO FORM
AND CORRECTNESS:

_____
MICHAEL J. MORTELL, ESQ.
CITY ATTORNEY

ACCEPTANCE AND AGREEMENT

BY SIGNING THIS ACCEPTANCE AND AGREEMENT, THE UNDERSIGNED HEREBY ACCEPTS AND AGREES TO ALL OF THE TERMS AND CONDITIONS CONTAINED IN A SMALL-SCALE COMPREHENSIVE PLAN LAND USE AMENDMENT AND IN ALL EXHIBITS, ATTACHMENTS AND DEVELOPMENT DOCUMENTS, INTENDING TO BE BOUND THEREBY, AND THAT SUCH ACCEPTANCE AND AGREEMENT IS DONE FREELY, KNOWINGLY, AND WITHOUT ANY RESERVATION, AND FOR THE PURPOSES EXPRESSED WITHIN THE ABOVE ORDINANCE. IF IT IS LATER DISCOVERED THAT THE UNDERSIGNED, OR ITS SUCCESSORS OR ASSIGNS HAVE FAILED IN ANY MATERIAL WAY TO DEVELOP THIS RESIDENTIAL PLANNED UNIT DEVELOPMENT ACCORDING TO THIS ORDINANCE, ITS CONDITIONS, AND THE DEVELOPMENT PLANS AND DOCUMENTS, THE UNDERSIGNED UNDERSTANDS AND AGREES THAT THIS ORDINANCE MAY BE AMENDED OR REPEALED BY THE CITY COMMISSION, AND THAT OTHER ACTIONS MAY BE TAKEN AGAINST THE UNDERSIGNED BY THE CITY, INCLUDING BUT NOT LIMITED TO CODE ENFORCEMENT ACTIONS, PERMIT AND LICENSING REVOCATIONS, AND ALL APPLICABLE CIVIL AND CRIMINAL ACTIONS.

IN WITNESS WHEREOF THE UNDERSIGNED HAS EXECUTED THIS ACCEPTANCE AND AGREEMENT:

WITNESSES:

_____

Print Name: _____

_____

Print Name: _____

Middle Island Management & Development LLC

By: _____

Jeffrey Hardin (Agent of Middle Island Management & Development LLC)

Personally Known _____ OR Produced Identification _____Type of ID_____

OWNERS ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before me this _____ day of _____, 2022, by Jeffrey Hardin, Agent for Middle Island Management LLC

_____

Notary Public, State of Florida

My Commission Expires:

Notary Seal

Personally Known _____ OR Produced Identification _____

Type of Identification Produced _____

CITY'S ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before The above Ordinance, Acceptance and Agreement was acknowledged before me by means of ☒ physical presence or ☐ online notarization this _____ day of _____, 2022 Merritt Matheson, Mayor, and Mary Kindel, City Clerk, respectively, of the City of Stuart, Florida, a Florida municipal corporation, who ☐ are personally known to me or ☐ have produced _____as identification.

(Notary Seal)

_____

Signature of Notary Public

Printed Name: _____

EXHIBIT A – LEGAL DESCRIPTION

PARCEL 1: LOTS 11, 12 AND 13, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA. PARCEL 2: LOTS 14, 15, 16, 17, AND 18, BLOCK 20, REVISED PLAT OF GOSLING, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 2, PAGE 35, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA; ALSO SHOWN ON THE PLAT OF RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA, AND MARKED "NOT INCLUDED IN THIS ACREAGE". PARCEL 3: LOTS 19, 20, 21, 22, 23, 24, 25 AND 26, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA. PARCEL 4: : A PARCEL OF SUBMERGED LAND IN THE ST. LUCIE RIVER IN SECTION 32, TOWNSHIP 37 SOUTH, RANGE 41EAST, MARTIN COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:FROM THE NORTHWEST CORNER OF LOT 14, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA RUN SOUTH 87°01' EAST ALONG THE NORTH LINE OF THE SAID LOT 14, A DISTANCE OF 319.00 FEET TO THE SHORELINE OF THE ST. LUCIE RIVER FOR THE POINT OF BEGINNING; THENCE CONTINUE SOUTH 87°01' EAST, A DISTANCE OF 211.15 FEET TO THE BULKHEAD LINE AS ESTABLISHED BY THE CITY OF STUART; THENCE SOUTH 04°40'27" WEST ALONG SAID BULKHEAD LINE, A DISTANCE OF 447.60 FEET; THENCE SOUTH 43°03' WEST ALONG SAID BULKHEAD LINE, A DISTANCE OF 259.38 FEET; THENCE NORTH 87°01' WEST, A DISTANCE OF 237 FEET TO AFORESAID SHORELINE OF ST. LUCIE RIVER, THENCE MEANDER SAID SHORELINE NORTH 4°55" WEST, A DISTANCE OF 188.00 FEET; THENCE NORTH 03°45" EAST, A DISTANCE OF 130.00 FEET; THENCE NORTH 50° EAST, A DISTANCE OF 122.00 FEET; THENCE SOUTH 87°01' EAST, A DISTANCE OF 116.00 FEET; THENCE NORTH 08°45' EAST A DISTANCE OF 247.72 FEET TO THE POINT OF BEGINNING. PARCEL 5: LOT 27 AND LOT 28, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA. LEASEHOLD PARCEL: A PARCEL OF SOVEREIGNTY SUBMERGED LAND LYING IN THE ST. LUCIE RIVER, IN THE SOUTH HALF OF SECTION 32, TOWNSHIP 37 SOUTH, RANGE 41 EAST, CITY OF STUART, MARTIN COUNTY, FLORIDA, SAID PARCEL BEING EASTERLY OF LOTS 11, 12, & 13 IN BLOCK 20 OF “RIVERSIDE PARK” ACCORDING TO THE PLAT THEREOF AS RIVERSIDE PARK” ACCORDING TO THE PLAT THEREOF AS ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 4 AT PAGE 98 OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY,FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:COMMENCING AT THE NORTHWEST CORNER OF LOT 11; THENCE ALONG THE NORTH LINE OF SAID LOT 11:SOUTH 87°06’04” EAST 280.68 FEET TO A POINT 04” EAST 280.68 FEET TO A POINT EAST 280.68 FEET TO A POINT 0.32 FEET SOUTH OF THE MOST SOUTHEASTERLY CORNER OF AN EXISTING PIER AND THE POINT OF BEGINNING; THENCE ALONG THE EASTERLY EXTENSION OF SAID NORTH LINE, CONTINUING; (2) SOUTH 87°06’04” EAST 234.63 FEET; (3) THENCE SOUTH 07°15’52” WEST 139.64 FEET; (4) THENCE SOUTH 45°33’18” WEST 15.85 FEET TO ITS 04” EAST 234.63 FEET; (3) THENCE SOUTH 07°15’52” WEST 139.64 FEET; (4) THENCE SOUTH 45°33’18” WEST 15.85 FEET TO ITS EAST 234.63 FEET; (3) THENCE SOUTH 07°15’52” WEST 139.64 FEET; (4) THENCE SOUTH 45°33’18” WEST 15.85 FEET TO ITS 52” WEST 139.64 FEET; (4) THENCE SOUTH 45°33’18” WEST 15.85 FEET TO ITS WEST 139.64 FEET; (4) THENCE SOUTH 45°33’18” WEST 15.85 FEET TO ITS 18” WEST 15.85 FEET TO ITS WEST 15.85 FEET TO ITS INTERSECTION WITH THE EASTERLY EXTENSION OF THE SOUTH LINE OF SAID LOT 13; THENCE ALONG SAID EXTENSION: (5) NORTH 87°06’04” WEST 183.29 FEET TO ITS 04” WEST 183.29 FEET TO ITS WEST 183.29 FEET TO ITS INTERSECTION WITH THE MEAN HIGH WATER LINE OF SAID ST. LUCIE RIVER;THENCE ALONG SAID MEAN HIGH WATER LINE: (6) NORTH 19°00’42” WEST 25.03 FEET; (7) 42” WEST 25.03 FEET;

(7) WEST 25.03 FEET; (7) NORTH 25°31’33” WEST 25.00 FEET; (8) NORTH 25°47’38” WEST 24.91 FEET; (9) NORTH 18°32’37” WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH 33” WEST 25.00 FEET; (8) NORTH 25°47’38” WEST 24.91 FEET; (9) NORTH 18°32’37” WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH WEST 25.00 FEET; (8) NORTH 25°47’38” WEST 24.91 FEET; (9) NORTH 18°32’37” WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH 38” WEST 24.91 FEET; (9) NORTH 18°32’37” WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH WEST 24.91 FEET; (9) NORTH 18°32’37” WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH 37” WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH WEST 24.89 FEET; (10) NORTH 08°36’39” WEST 25.74 FEET; (11) NORTH 39” WEST 25.74 FEET; (11) NORTH WEST 25.74 FEET; (11) NORTH 00°30’17” WEST 25.29 FEET; (12) NORTH 20°41’08” EAST 10.67 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF SAID LOT 11; THENCE ALONG SAID NORTH LINE (13) 17” WEST 25.29 FEET; (12) NORTH 20°41’08” EAST 10.67 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF SAID LOT 11; THENCE ALONG SAID NORTH LINE (13) WEST 25.29 FEET; (12) NORTH 20°41’08” EAST 10.67 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF SAID LOT 11; THENCE ALONG SAID NORTH LINE (13) 08” EAST 10.67 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF SAID LOT 11; THENCE ALONG SAID NORTH LINE (13) EAST 10.67 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF SAID LOT 11; THENCE ALONG SAID NORTH LINE (13) SOUTH 87°06’04” EAST 15.70 FEET TO THE POINT OF BEGINNING. 04” EAST 15.70 FEET TO THE POINT OF BEGINNING. EAST 15.70 FEET TO THE POINT OF BEGINNING. AND TOGETHER WITH A PORTION OF GOVERNMENT LOT 3, SECTION 5, TOWNSHIP 38 SOUTH, RANGE 41 EAST MARTIN COUNTY, FLORIDA. BEING MORE PARTICULARLY DESCRIED BY METE AND BOUNDS AS FOLLOWS: BEGIN AT THE NORTH 1/4 CORNER OF SAID SECTION 5; THENCE S89°49'23"W ALONG THE NORTH LINE OF AID SECTION 5 FOR 96.59 FEET TO AN INTERSECTION WITHTHE ARC OF A CIRCULAR CURVE BEING 50.00 FEET NORTHEASTERLY OF, AS MEASURE AT RIGHT ANGLES AND PARALLEL. TO THE CENTERLINE OF RAILROAD TRACKS AS LAID OUT AND IN USE (12/12/02) AND HAVING A TANGENT BEARING OF S35°52'01"E; THENCE SOUTHEASTERLY ALONG THE ARC OF SAID PARALLEL CURVE HAVING ARADIUS OF 702.22 FEET AND A CENTRAL ANGLE OF 10°27'28" FOR 128.17 FEET TO A POINT OF TANGENCY; THENCE S46°19'29"E FOR 16.33 FEET TO AN INTERSECTIONWITH THE MEAN HIGH WATER LINE OF THE ST. LUCIE RIVER; THENCE MEANDER ALONG SAID MEAN HIGH WATER LINE FOR THE FOLLOWING FOUR (4) COURSES: (1)N08°26'25"E FOR 25.24 FEET;(2)N00°49'02"W FOR 22.74 FEET;(3)N05°58'57"E FOR 31.58 FEET;(4) N01°50'29"E FOR 28.95 FEET TO AN INTERSECTION WITH THEEASTERLY EXTENSION OF THE NORTH LINE OF SAID SECTION 5 THENCES89%%^d49'23"W FOR 6.96 FEET TO THE POINT OF BEGINNING. SAID PARCEL CONTAINS 6,018 SQUARE FEET MORE OR LESS.

EXHIBIT B – LOCATION MAP



BEFORE THE CITY COMMISSION
CITY OF STUART, FLORIDA

RESOLUTION NUMBER 43 - 2022

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA, AMENDING THE FUTURE LAND USE MAP OF THE CITY'S COMPREHENSIVE PLAN THEREBY CHANGING THE FUTURE LAND USE DESIGNATION FROM "INDUSTRIAL" TO "MARINE INDUSTRIAL" FOR MIDDLE ISLAND MANAGEMENT AND DEVELOPMENT, LLC OWNER OF PROPERTY LOCATED AT 75 NW FLAGLER AVENUE, ADJACENT TO THE ST. LUCIE RIVER, PARALLEL TO NW FLAGLER AVENUE, NORTH DIXIE HIGHWAY, AND THE FEC RAILWAY, AS DESCRIBED WITHIN THE ATTACHED LEGAL DESCRIPTION; AND FURTHER GRANTING A MAJOR URBAN CODE CONDITIONAL USE APPROVAL ALLOWING URBAN DESIGN VARIANCES TO THE URBAN WATERFRONT DISTRICT SUCH AS THE MAXIMUM CUMULATIVE FRONT BUILDING FAÇADE WIDTH OF 160 FEET, THE REQUIREMENT TO PROVIDE ADDITIONAL VISTA REQUIREMENTS FOR A BUILDING FAÇADE 100 FEET OR MORE IN WIDTH, MAXIMUM BUILDING HEIGHT OF THREE STORIES AND 35 FEET, THE REQUIREMENT TO PROVIDE BALCONIES ON THE WATERFRONT SIDE OF A BUILDING, FROM CERTAIN ARCHITECTURAL STANDARDS AND REGULATIONS AND SIDE SETBACKS OF NOT LESS THAN 10 FEET ON EACH SIDE; IN ORDER TO BUILD A BOAT BARN, RESTAURANT, SHIP STORE, BOAT SLIPS, AND ASSOCIATED MARINA USES. PROVIDING AN EFFECTIVE DATE; PROVIDING FOR A TIMETABLE OF DEVELOPMENT; PROVIDING FOR CONDITIONS OF APPROVAL; AND FOR OTHER PURPOSES.

* * * * *

WHEREAS, the City Commission held a properly noticed hearing at a regularly scheduled City Commission to consider the application by Cuozzo Planning Solutions, Inc. representing Middle Island Management & Development LLC (owner), for a 10.81-acre parcel of land;

WHEREAS, the Local Planning Agency held a properly noticed hearing at a regularly scheduled meeting to consider the application of the Petitioner and recommended approval of the Small-scale Land Use change on April 14, 2022; and

WHEREAS, the Community Redevelopment Board held a properly noticed hearing at a regularly scheduled meeting to consider the applications of the Petitioner and recommended approval of the Major Urban Code Conditional Use on May 3, 2022; and Minor Urban Code Conditional Use for required Public Art.

WHEREAS, on May 9, 2022, the City Commission held a properly noticed hearing at a regularly scheduled City Commission to consider the application by the Owner and Applicant, to consider the Major Urban Code Conditional Use and Small-Scale Comprehensive Plan land use change, and

WHEREAS, the Owner and Applicant have committed to the City that its development will comply with all development codes, plans, standards and conditions approved by the City Commission; and that it will bind its successors in title to any such commitments made upon this resolution; and

WHEREAS, at the hearing the applicant showed by substantial competent evidence that the application is consistent with the Stuart Comprehensive Plan, and the Land Development Code of the City, and with the procedural requirements of law; and

WHEREAS, the Applicant has committed to the City that its development will comply with all development codes, plans, standards and conditions approved by the City Commission; and that it will bind its successors in title to any such commitments made upon approval of the Major Urban Code Conditional Use Approval; and

WHEREAS, the Applicant, Middle Island Management & Development LLC, is requesting a Major Urban Code Conditional Use approval to allow for development of a

restaurant, boat barn/warehouse, boat slips, ship store, and supporting parking, infrastructure, and recreational facilities, on 10.81 parcel of which 7.86 acres is dry land, and

WHEREAS, the Applicant has requested a relief from 1) The maximum cumulative front building facade width of 160 feet measured parallel to the nearest body of water. 2) allowing for a continuous building façade of more than 100 feet in width without providing an additional vista to the river, 3) an increase in the maximum height from 3 stories and 35 feet to 4 stories and 45 feet, 4) balconies and balcony rails on the waterside elevation are not at least 50% of the fenestration, 5) from architectural standards and regulations such as building wall materials and other design standards to include tilt-up wall construction of a boat barn with a mansard style roof and 6) a reduction in the side setback from 10 feet to 2 feet for an existing 1,570 square foot one story brick building. In addition to the urban code variance requests, a variance is requested for sidewalks that are 6 feet rather than 8 feet in width along N.W. Flagler Avenue right-of-way; and

WHEREAS, the Major Conditional Use approval shall run with the land; and

WHEREAS, the property is legally described in **"Exhibit A"** of this ordinance. A map depicting the property is attached hereto as **Exhibit "B"** and made a part hereof by reference and development conditions attached hereto as **Exhibit "C";**

NOW THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF STUART, FLORIDA that:

SECTION 1: The following new documents are on file as public records of the City, at the office of the City Clerk in City Hall, and attached hereto as **Exhibit "D"**, hereinafter the "Development Documents", shall be deemed a part of this ordinance:

a. **Boundary & Topographic Survey, EDC Engineers, 8-18-2020**
b. **Site Plan: Conceptual Design Group, Inc.: 3-31-2022**
c. **Landscape Plan Set, Sheets L1thru L-5, Conceptual Design Group, Inc.: 4-1-2022 (Dry Det.)**
d. **Tree Disposition Plan Set, Sheet TD-1 thru TD-4, Conceptual Design Group, Inc.:3-7-2022**
e. **Phasing Plan, Conceptual Design Group, Inc. 2-21-2022**
f. **Preliminary Engineering Plans, Utility & Drainage, EDC Engineers, (being revised)**
g. **Vehicular Circulation Plan Set, EDC Engineers, 2-24-2022**
h. **Architectural Plan Set including conceptual signage and photometric plans: Birse/Thomas Architects: 02-28-2022**

SECTION 2: The Future land Use designation of the subject property shall be established as "Marine Industrial" on the City of Stuart's Official Land Use Map.

SECTION 3: Except as otherwise provided herein, no development permits, site permits, or building permits shall be issued by the City except in compliance with the City's Land Development Code.

SECTION 4: All resolutions or parts of resolutions in conflict with this resolution or any part thereof is hereby repealed to the extent of such conflict. If any provision of this ordinance conflicts with any contractual provision between the City and the developer of the site, this resolution shall prevail.

SECTION 5: If any provision of this resolution or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications which can be given effect without the invalid provision or application, and to

this end the provisions of this ordinance are declared severable.

SECTION 6: Following the adoption and acceptance of this resolution by the Owner, and in addition to any other action for failure to complete development or otherwise comply with the Development Documents, the City Development Director may obtain a hearing before the City Commission, $shall thereupon give at least five (5) days written notice of the time, date and location of the hearing, along with specific notice of the alleged breach. At the hearing before the City Commission the developer may appear and may contest the allegation of breach or explain the reason or reasons for the breach. Upon a finding of a material breach of the Development Documents and therefore, the Resolution(s) adopting the same, the City Commission may impose or do any or all of the following:

a. Initiate the process to amend or repeal this or any other ordinance pertaining to the development.
b. Direct the City Development Director to initiate the process to rezone the property or any portion of the property.
c. Impose an administrative penalty of up to $1,000.00 for each violation, and up to $5,000.00 for each repeat violation that occurs, along with all reasonable costs, including attorney's fees incurred by the City.

Any breach of any provision or condition of this conditional use resolution by the developer shall be considered a zoning violation subject to any remedies provided herein, or as otherwise provided by law. In the event a violation found continues from day to day, each day the violation is found to continue shall be deemed a separate violation.

SECTION 7: This resolution shall be effective upon the last of the following to occur: adoption by the City Commission, and proper execution and acceptance by the Owners.

SECTION 8: The complete execution and recording of this resolution by the City Clerk shall occur no later than 60 days from the date of this approval, failing which this ordinance shall be void.

SECTION 9: Upon complete execution of this resolution including the Acceptance and Agreement by the Owners, the City Clerk is directed to record a Certified Copy of the same in the Public Records of Martin County, Florida.

Passed on the ____ day of _____, 2022.

Commissioner _____ offered the foregoing Resolution and moved its adoption. The motion was seconded by Commissioner _____ and upon being put to a roll call vote, the vote was as follows:

	YES	NO	ABSENT	ABSTAIN
MERRITT MATHESON, MAYOR				
TROY MCDONALD, VICE MAYOR				
BECKY BRUNER, COMMISSIONER				
EULA R. CLARKE, COMMISSIONER				
MIKE MEIER, COMMISSIONER				

ATTEST:

_____
MARY R. KINDEL
CITY CLERK

_____
MERRITT MATHESON
MAYOR

APPROVED AS TO FORM
AND CORRECTNESS:

_____
MICHAEL J. MORTELL, ESQ.
CITY ATTORNEY

ACCEPTANCE AND AGREEMENT

BY SIGNING THIS ACCEPTANCE AND AGREEMENT, THE UNDERSIGNED HEREBY ACCEPTS AND AGREES TO ALL OF THE TERMS AND CONDITIONS CONTAINED IN AN URBAN CODE CONDITIONAL USE APPROVAL AND IN ALL EXHIBITS, ATTACHMENTS AND DEVELOPMENT DOCUMENTS, INTENDING TO BE BOUND THEREBY, AND THAT SUCH ACCEPTANCE AND AGREEMENT IS DONE FREELY, KNOWINGLY, AND WITHOUT ANY RESERVATION, AND FOR THE PURPOSES EXPRESSED WITHIN THE ABOVE ORDINANCE. IF IT IS LATER DISCOVERED THAT THE UNDERSIGNED, OR ITS SUCCESSORS OR ASSIGNS HAVE FAILED IN ANY MATERIAL WAY TO DEVELOP THIS RESIDENTIAL PLANNED UNIT DEVELOPMENT ACCORDING TO THIS ORDINANCE, ITS CONDITIONS, AND THE DEVELOPMENT PLANS AND DOCUMENTS, THE UNDERSIGNED UNDERSTANDS AND AGREES THAT THIS ORDINANCE MAY BE AMENDED OR REPEALED BY THE CITY COMMISSION, AND THAT OTHER ACTIONS MAY BE TAKEN AGAINST THE UNDERSIGNED BY THE CITY, INCLUDING BUT NOT LIMITED TO CODE ENFORCEMENT ACTIONS, PERMIT AND LICENSING REVOCATIONS, AND ALL APPLICABLE CIVIL AND CRIMINAL ACTIONS.

IN WITNESS WHEREOF THE UNDERSIGNED HAS EXECUTED THIS ACCEPTANCE AND AGREEMENT:

WITNESSES:

Middle Island Management & Development LLC

_____
Print Name: _____

By: _____
Jeffrey Hardin (Agent of Middle Island Management & Development LLC)

_____
Print Name: _____

Personally Known _____ OR Produced Identification _____Type of ID_____

OWNERS ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before me this _____ day of _____, 2022, by Jeffrey Hardin, Agent for Middle Island Management LLC

_____
Notary Public, State of Florida
My Commission Expires:

Notary Seal

Personally Known _____ OR Produced Identification _____
Type of Identification Produced _____

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CITY'S ACKNOWLEDGMENT

The above Ordinance, Acceptance and Agreement was acknowledged before The above Ordinance, Acceptance and Agreement was acknowledged before me by means of ☒ physical presence or ☐ online notarization this _____ day of _____, 2022 Merritt Matheson, Mayor, and Mary Kindel, City Clerk, respectively, of the City of Stuart, Florida, a Florida municipal corporation, who ☐ are personally known to me or ☐ have produced _____as identification.

(Notary Seal)

_____
Signature of Notary Public
Printed Name: _____

Exhibit "A" Legal Description

LEGAL DESCRIPTION

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AND TOGETHER WITH

A PORTION OF GOVERNMENT LOT 3, SECTION 5, TOWNSHIP 38 SOUTH, RANGE 41 EAST MARTIN COUNTY, FLORIDA. BEING MORE PARTICULARLY DESCRIED BY METE AND BOUNDS AS FOLLOWS:

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SAID PARCEL CONTAINS 6,018 SQUARE FEET MORE OR LESS.

Exhibit "B" Map:



Exhibit "C" Conditions of Approval

Approved Plans and Documents (Exhibit "D")

a. **Boundary & Topographic Survey, EDC Engineers, 8-18-2020**
b. **Site Plan: Conceptual Design Group, Inc.: 3-31-2022**
c. **Landscape Plan Set, Sheets L1thru L-5, Conceptual Design Group, Inc.: 4-1-2022 (Dry Det.)**
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h. **Architectural Plan Set including conceptual signage and photometric plans: Birse/Thomas Architects: 02-28-2022**

Development and Construction

1. Except as otherwise set forth in the Atlantic Point Marina Urban Code Conditional Use Approval, development shall comply with the City Land Development Code. Any modifications to the Master Site Plan that exceeds 10% of the approved building footprint, building setbacks, gross square footage, building location, parking size, location and number of parking, drainage areas, and location of landscaping, may be approved by the City's Development Director, provided however, the Development Director may refer the matter to the City Commission for approval via public hearing.

2. All applicable state or federal permits must be obtained before the commencement of any development activities. Issuance of this development order/permit/approval by the City of Stuart does not in any way create any right on the part of an applicant to obtain a permit from a state or federal agency and does not create any liability on the part of the City of Stuart for the issuance of this order/permit/approval if the applicant fails to obtain requisite approvals or fulfill the obligations imposed by a state or federal agency or undertakes actions that result in a violation of state or federal law.

3. Existing Mangroves shall be maintained and protected during construction and thereafter. Any trimming shall only be permitted by the Florida Department of Environmental Protection.

Allowable Uses

4. All uses allowed in Section 3.01.03.F.2. of the City's Land Development Code are permitted, however, the uses are restricted in accordance with the parking calculations within Section 3.01.03.F.2.

Prohibited

5. No temporary or modular buildings are permitted on the property except for permitted temporary construction/leasing trailers.

6. Billboards are prohibited on the property.

7. Banners and any other sign or advertising device not in accordance with the City's Land Development Regulations are prohibited.

8. No Live aboard vessels are allowed in the submerged land lease area connected to this conditional use approval unless it is for the purpose to dock and to use the Atlantic Point Marina facilities. No residential activities shall be permitted.

Prior to Issuance of Site Permits

9. Applicant shall provide a digital boundary survey and civil plan prior to the issuance of a site permit.
10. Civil Plans shall be reviewed and approved by all applicable City departments prior to the issuance of a site permit.

11. All regulatory agency permits, including but not limited to the South Florida Water Management District, Department of Environmental Protection and Army Corp of Engineers, shall be obtained by the applicant and copies provided to the City prior to the commencement of any development activities.

12. All development activities shall comply with the City's Concurrency Management System prior to the issuance of building permits.

13. A compliance with the City's Public Art (Land Development Code 3.01.08) shall be required prior to issuance of Building Permit. The alternatives are an approval of a work of art on the development site by the Community Redevelopment Board, or the contribution of a sum of one percent of the vertical construction cost into the public art trust fund.

14. An application for site plan approval for all docks/piers shall be required to comply with the Land Development Code provisions of 5.06.02 (Shoreline Protection Zone Delineation) and shall be accompanied with valid permits from the South Florida Water Management District and/or the Florida Department of Environmental Protection

15. Except as provided herein, all development shall comply with City Code.

16. Any sidewalks or roads damaged during construction shall be repaired and/or replaced by the applicant as per the City's specification.

17. Site lighting shall not negatively impact adjacent properties and shall not create a visual nuisance. Decorative exterior light fixtures shall be approved prior to the issuance of any development permits.
18. Erosion and dust control measures to be implemented during construction shall be provided on the civil engineering plans and submitted during final site plan review. Water trucks shall

be provided by the applicant as necessary during construction in order to reduce dust generated on-site.

19. A Landscape Maintenance Agreement, executed in accordance with the City Land Development Regulations, shall be submitted for review and approval prior to the issuance of the Certificate of Completion.

20. All Landscape areas shall be provided with an irrigation system of sufficient capacity to maintain the landscaping in a healthy growing condition.

21. The applicant shall provide five (5) full bike racks, with a design acceptable to the City's Development Department.

22. Construction activity shall be limited to 7:00 am to 6:00 pm Monday thru Friday and 8 am to 6 pm Saturday and Sunday.

23. Banners and any other sign or advertising device not in accordance with the City's Land Development Regulations are prohibited on the property.

24. Billboards are prohibited on the property.

25. The conceptual sign package submitted as part of the Architectural set of drawings will be reviewed by staff prior to permitting to determine a reasonable sign area in relation the total wall area of each façade for each of the buildings.

26. The applicant shall provide details of docks with slips that would support a city water taxi stop, plans showing path to and from a continual and connected path to existing and future boardwalk.

27. All connections to existing and future board walk shall remain open without fee to the public.

28. The applicant shall comply with all applicable Handicap Accessibility standards.

29. Final Development Plans and Construction Drawings shall be reviewed and approved by all necessary City departments prior to the issuance of any building permits.

30. Prior to issuance of a building permit, the applicant shall either contribute the required art fee of one percent of the vertical construction cost or provide work of art on the development pursuant to Section 3.01.08

31. All dock facilities and marine related bulkheads, hardened shorelines, etc. shall be maintained by the property owner, any new marine related improvements, modification, repairs and permitting associated with such facilities shall be accomplished by, and the responsibility of, the owner. There shall be no liveaboards permitted by definition of the Department of Environmental Protection. The term "liveaboard" is defined as a vessel docked at the facility and inhabited by a person or persons for any five (5) consecutive days or a total of ten (10) days within a thirty (30) day period. Fueling facilities are permitted only at locations shown of the site plan.

32. The applicant shall submit a site building and marine construction permits prior to December 31, 2023 and obtain a Certificate of Completion for all buildings and marine related facilities by December 31, 2027.

33. The following uses shall be permitted:

    a. Boat Storage
    b. Retail (Ship store)
    c. Restaurant
    d. Fitness center
    e. Marina related activities

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY EDC, INC. SHALL BE WITHOUT LIABILITY TO EDC, INC.

BOUNDARY AND TOPOGRAPHIC SURVEY

WITH TREE LOCATIONS AND SUBSURFACE SCANNING

FOR: MIDDLE ISLAND MANAGEMENT AND DEVELOPMENT, LLC.



SURVEYORS STATEMENT

THE PROPERTY DESCRIBED HEREON IS THE SAME AS THE PROPERTY DESCRIBED IN OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY COMMITMENT NO. 887694 WITH AN EFFECTIVE DATE OF MAY 27, 2020 AND THAT ALL EASEMENTS, COVENANTS AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL INSPECTION OF THE SITE OR OTHERWISE KNOWN TO ME HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT ON THE SUBJECT PROPERTY.

SURVEYORS CERTIFICATION

THIS IS TO CERTIFY, TO THE HEREON NAMED PARTIES, THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES PLOTABLE ITEMS OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON AUGUST 17, 2020.

PUBLIC RECORDS INFORMATION

ALL IF THE RECORDING INFORMATION CONTAINED HEREON REFERS TO THE PUBLIC RECORDS OF MARTIN COUNTY, FLORIDA, UNLESS OTHERWISE INDICATED. ANY REFERENCE HEREON TO A OFFICIAL RECORD BOOK AND PAGE OR INSTRUMENT NUMBER IS A REFERENCE TO THE OFFICIAL RECORD BOOKS OF SAID COUNTY, UNLESS INDICATED TO THE CONTRARY.

PROPERTY ADDRESS

75 NORTH WEST FLAGLER AVE, STUART, FLORIDA 33494

CERTIFIED TO

1. MIDDLE ISLAND MANAGEMENT AND DEVELOPMENT LLC
2. OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
3. RUMBERGER, KIRK & CALDWELL, P.A.
4. GUNSTER, YOAKLEY & STEWART, P.A.
5. BRP US, INC.

SUBSURFACE NOTES & REPORT:

1. SUBSURFACE LOCATIONS SHOWN HEREON WERE MARKED BY DIG SAFE FIRST, LLC., A SUB-CONSULTANT TO EDC-INC.
2. SUBSURFACE LOCATIONS WERE COMPLETED ON AUGUST 13, 2020.
3. SUBSURFACE MAPPING WAS COMPLETED BETWEEN AUGUST 14 AND AUGUST 17, 2020.
4. LOCATIONS REFLECTED ARE THOSE THAT WERE ACCESSIBLE AT TIME OF WORK. ACCESS TO INTERIOR ELECTRICAL, COMMUNICATIONS, MECHANICAL AND PUMP ROOMS WAS LIMITED AS WELL AS ANY GAS FARMS AND LOCKED FENCES.
5. CLIENT TO BE ADVISED AND AWARE THAT LIMITATIONS EXIST IN LOCATING NON-METALLIC MATERIALS AND UTILITIES WITHOUT TRACEABLE WIRE ATTACHED (MATERIALS SUCH AS, BUT NOT LIMITED TO, PLASTICS, POLYVINYL CHLORIDE, FIBERGLASS AND FIBER-OPTIC.
6. DUE TO VARIANCES IN EQUIPMENT, SOIL AND SITE CONDITIONS, NO DEPTHS WERE PROVIDED.

FLIGHT NOTES & REPORT:

1. THIS SITE WAS FLOWN DURING AUGUST 16, 2020, UTILIZING A DJI PHANTOM 4 PRO SERIES DRONE, WITH DRONE DEPLOY VERSION 2.56.1 FOR FLIGHT PLANNING AND POST PROCESSING.
2. THE FLIGHT WAS CONDUCTED BY CERTIFIED REMOTE PILOT No. 4297810.
3. HORIZONTAL CONTROL STATEMENT: MAP BASED UPON NORTH AMERICAN DATUM OF 1983 (NAD83), FLORIDA STATE PLANE PROJECTION, EAST ZONE, US SURVEY FEET, FL83-EF UTILIZING EPSG CODE 2236. USE OF FOUND PLAT CONTROL, STATE RIGHT OF WAY POINTS, NGS MONUMENTATION AND/OR SECTIONAL BREAKDOWN WERE USED AS PART OF THE MAPPING PROCESS. DISTANCES SHOWN ARE IN U.S. SURVEY FEET AND DECIMAL PARTS THEREOF.
4. MEASUREMENTS OF DISTANCE, AREA AND VOLUME WITHIN THE MAP ARE ACCURATE TO WITHIN 1-3 TIMES THE GROUND SAMPLING DISTANCE. MAP MEASUREMENTS ARE WITHIN 1-3% OF GROUND-BASED MEASUREMENTS.
5. FEATURES ARE LIMITED TO THOSE VISIBLE AT TIME OF THE PHOTOGRAPHY AND ARE SUBJECT TO FIELD VERIFICATION BY THE END USER. AREAS DESIGNATED AS "OBSCURED" INDICATE THE GROUND IS OBSCURED BY VEGETATION AND/OR SHADOWS. MAPPING WITHIN THESE AREAS MAY NOT MEET STANDARD ACCURACY.
6. RELATIVE ACCURACY:
   - GROUND SAMPLING DISTANCE (GSD) RANGE= 0.02"/PIXEL
   - TOTAL (RMSE) X: 0.007" - Y: 0.005" - Z: 0.007"

ACREAGE BREAKDOWN

1) LANDS ABOVE MEAN HIGH WATER LINE (UPLANDS) CONTAINS 302,216± SQUARE FEET, 6.9± ACRES.
2) LANDS BELOW MEAN HIGH WATER LINE, NOT INCLUDING LEASEHOLD PARCEL CONTAINS: 94,373± SQUARE FEET, 2.17 ± ACRES.
3) LEASEHOLD PARCEL CONTAINS: 36,0001± SQUARE FEET, 8.2± ACRES.

LEGAL DESCRIPTION

PARCEL 1:
LOTS 11, 12 AND 13, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA.

PARCEL 2:
LOTS 14, 15, 16, 17, AND 18, BLOCK 20, REVISED PLAT OF GOSLING, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 2, PAGE 35, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA; ALSO SHOWN ON THE PLAT OF RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA, AND MARKED "NOT INCLUDED IN THIS ACREAGE".

PARCEL 3:
LOTS 19, 20, 21, 22, 23, 24, 25 AND 26, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA.

PARCEL 4:
A PARCEL OF SUBMERGED LAND IN THE ST. LUCIE RIVER IN SECTION 32, TOWNSHIP 37 SOUTH, RANGE 41EAST, MARTIN COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:FROM THE NORTHWEST CORNER OF LOT 14, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA
RUN SOUTH 87°01' EAST ALONG THE NORTH LINE OF THE SAID LOT 14, A DISTANCE OF 319.00 FEET TO THE SHORELINE OF THE ST. LUCIE RIVER FOR THE POINT OF BEGINNING; THENCE CONTINUE SOUTH 87°01' EAST, A DISTANCE OF 211.15 FEET TO THE BULKHEAD LINE AS ESTABLISHED BY THE CITY OF STUART; THENCE SOUTH 04°40'27" WEST ALONG SAID BULKHEAD LINE, A DISTANCE OF 447.60 FEET; THENCE SOUTH 43°03' WEST ALONG SAID BULKHEAD LINE, A DISTANCE OF 259.38 FEET; THENCE NORTH 87°01' WEST, A DISTANCE OF 237 FEET TO AFORESAID SHORELINE OF ST. LUCIE RIVER, THENCE MEANDER SAID SHORELINE NORTH 4°55" WEST, A DISTANCE OF 188.00 FEET; THENCE NORTH 03°45" EAST, A DISTANCE OF 130.00 FEET; THENCE NORTH 50° EAST, A DISTANCE OF 122.00 FEET; THENCE SOUTH 87°01' EAST, A DISTANCE OF 116.00 FEET; THENCE NORTH 08°45' EAST A DISTANCE OF 247.72 FEET TO THE POINT OF BEGINNING.

PARCEL 5:
LOT 27 AND LOT 28, BLOCK 20, RIVERSIDE PARK, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 4, PAGE 98, OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY, FLORIDA.

LEASEHOLD PARCEL:
A PARCEL OF SOVEREIGNTY SUBMERGED LAND LYING IN THE ST. LUCIE RIVER, IN THE SOUTH HALF OF SECTION 32, TOWNSHIP 37 SOUTH, RANGE 41 EAST, CITY OF STUART, MARTIN COUNTY, FLORIDA, SAID PARCEL BEING EASTERLY OF LOTS 11, 12, & 13 IN BLOCK 20 OF "RIVERSIDE PARK" ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 4 AT PAGE 98 OF THE PUBLIC RECORDS OF ST. LUCIE (NOW MARTIN) COUNTY,FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:COMMENCING AT THE NORTHWEST CORNER OF LOT 11; THENCE ALONG THE NORTH LINE OF SAID LOT 11:SOUTH 87°06'04"EAST 280.68 FEET TO A POINT 0.32 FEET SOUTH OF THE MOST SOUTHEASTERLY CORNER OF AN EXISTING PIER AND THE POINT OF BEGINNING; THENCE ALONG THE EASTERLY EXTENSION OF SAID NORTH LINE, CONTINUING; (2) SOUTH 87°06'04"EAST 234.63 FEET; (3) THENCE SOUTH 07°15'52"WEST 139.64 FEET; (4) THENCE SOUTH 45°33'18"WEST 15.85 FEET TO ITS INTERSECTION WITH THE EASTERLY EXTENSION OF THE SOUTH LINE OF SAID LOT 13; THENCE ALONG SAID EXTENSION: (5) NORTH 87°06'04"WEST 183.29 FEET TO ITS INTERSECTION WITH THE MEAN HIGH WATER LINE OF SAID ST. LUCIE RIVER;THENCE ALONG SAID MEAN HIGH WATER LINE: (6) NORTH 19°00'42"WEST 25.03 FEET; (7) NORTH 25°31'33"WEST 25.00 FEET; (8) NORTH 25°47'38"WEST 24.91 FEET; (9) NORTH 18°32'37"WEST 24.89 FEET; (10) NORTH 08°36'39"WEST 25.74 FEET; (11) NORTH 00°30'17"WEST 25.29 FEET; (12) NORTH 20°41'08"EAST 10.67 FEET TO ITS INTERSECTION WITH THE NORTH LINE OF SAID LOT 11; THENCE ALONG SAID NORTH LINE (13) SOUTH 87°06'04"EAST 15.70 FEET TO THE POINT OF BEGINNING.

AND TOGETHER WITH

A PORTION OF GOVERNMENT LOT 3, SECTION 5, TOWNSHIP 38 SOUTH, RANGE 41 EAST MARTIN COUNTY, FLORIDA. BEING MORE PARTICULARLY DESCRIED BY METE AND BOUNDS AS FOLLOWS:

BEGIN AT THE NORTH 1/4 CORNER OF SAID SECTION 5; THENCE S89°49'23"W ALONG THE NORTH LINE OF AID SECTION 5 FOR 96.59 FEET TO AN INTERSECTION WITH THE ARC OF A CIRCULAR CURVE BEING 50.00 FEET NORTHEASTERLY OF, AS MEASURE AT RIGHT ANGLES AND PARALLEL. TO THE CENTERLINE OF RAILROAD TRACKS AS LAID OUT AND IN USE (12/12/02) AND HAVING A TANGENT BEARING OF S35°52'01"E; THENCE SOUTHEASTERLY ALONG THE ARC OF SAID PARALLEL CURVE HAVING A RADIUS OF 702.22 FEET AND A CENTRAL ANGLE OF 10°27'28" FOR 128.17 FEET TO A POINT OF TANGENCY; THENCE S46°19'29"E FOR 16.33 FEET TO AN INTERSECTION WITH THE MEAN HIGH WATER LINE OF THE ST. LUCIE RIVER; THENCE MEANDER ALONG SAID MEAN HIGH WATER LINE FOR THE FOLLOWING FOUR (4) COURSES: (1)N08°26'25"E FOR 25.24 FEET;(2)N00°49'02"W FOR 22.74 FEET;(3)N05°58'57"E FOR 31.58 FEET;(4) N01°50'29"E FOR 28.95 FEET TO AN INTERSECTION WITH THE EASTERLY EXTENSION OF THE NORTH LINE OF SAID SECTION 5 THENCES89%%"d49'23"W FOR 6.96 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 6,018 SQUARE FEET MORE OR LESS.

TREE LEGEND

TAG No	TYPE	SIZE (INCHES)
N.A	PALM 20	20
N.A.	PALM	15
707	PALM	18
708	PALM	18
709	PALM	18
710	PALM	18
N.A	UNKNOWN	36
712	PALM 15	15
713	PALM 15	15
714	PALM 8	8
715	PALM 10	10
716	PALM 8	8
717	PALM	12
718	PALM	14
719	PALM	12
720	PALM	14
721	PALM	10
722	PALM	14
723	PALM	12
724	PALM	15
725	PALM	14
726	PALM	12
727	PALM	14
728	PALM	8
729	PALM	12
730	PALM	10
731	PALM	12
732	PALM	15
734	PALM	12
735	PALM	10
736	PALM	12
737	PALM	14
738	PALM	12
739	PALM	12
740	PALM	12
741	PALM	12
742	PALM	14
743	PALM	16
745	PALM	15
746	PALM	12
748	PALM	8
749	PALM	8
747	PALM	12
751	PALM	10
739	PALM	12
740	PALM	12
742	PALM	12
741	PALM	12
753	PALM	15
754	PALM	14
10420	PALM	18
10421	PALM	18
10422	PALM	30
10423	PALM	30

SURVEYORS NOTES

1) REPRODUCTIONS OF THIS MAP ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. THIS SURVEY CANNOT BE TRANSFERRED OR ASSIGNED WITHOUT THE SPECIFIC WRITTEN PERMISSION OF ENGINEERING, DESIGN AND CONSTRUCTION, INC. IT IS A VIOLATION OF CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, TO ALTER THIS SURVEY WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE SURVEYOR. ADDITIONS AND/OR DELETIONS MADE TO THE FACE OF THIS SURVEY WILL MAKE THIS SURVEY INVALID.
2) CURRENT DESCRIPTION(S) SHOWN HEREON PROVIDED BY THE CLIENTS AND/OR THEIR AGENTS. LANDS SHOWN HEREON WERE NOT ABSTRACTED BY THIS OFFICE FOR RIGHTS-OF-WAY, EASEMENTS OF RECORD, OWNERSHIP, ABANDONMENT'S, DEED RESTRICTIONS, OR MURPHY ACT DEEDS. A FORMAL TITLE COMMITMENT WAS PROVIDED FROM OLD REPUBLIC TITLE INSURANCE COMPANY.
3) SUBSURFACE IMPROVEMENTS, INCLUDING UNDERGROUND UTILITIES, UTILITY SERVICES, WERE MARKED BY A SUB-CONSULTANT, AND HORIZONTALLY LOCATED AS PART OF THIS SURVEY. EDC MAKES NO WARRANTIES OR GUARANTEES TO THE ACCURACY OF THE MARKINGS. SEE SUBSURFACE NOTES AND REPORT PORTION OF THIS PAGE.
4) THE LAST DATE OF FIELD WORK WAS AUGUST 25, 2021.
5) REVISIONS SHOWN HEREON DO NOT REPRESENT A "FIELD SURVEY UPDATE" UNLESS OTHERWISE NOTED.
6) BEARINGS, IF SHOWN HERON, ARE BASED UPON NORTH AMERICAN DATUM OF 1983, FLORIDA STATE PLANE PROJECTION PER THE LINE LABELED HERON AS (BEARING BASIS) AND ALL OTHER BEARINGS ARE RELATIVE THERETO. DISTANCES ARE IN U.S. SURVEY FEET AND DECIMAL PARTS THEREOF.
7) IN SOME INSTANCES, GRAPHIC REPRESENTATIONS AND SYMBOLS SHOWN HAVE BEEN EXAGGERATED TO MORE CLEARLY ILLUSTRATE THE RELATIONSHIP BETWEEN PHYSICAL IMPROVEMENTS AND/OR LOT LINES. THE DIMENSIONS SHOWN SHALL CONTROL THE LOCATION, OF THE IMPROVEMENTS, OVER THE SCALED POSITIONS.
8) THE OWNERSHIP OF PERIMETER FENCES, WALLS, HEDGES AND LANDSCAPING SHOWN HEREON ARE NOT KNOWN AND ARE NOT LISTED AS ENCROACHMENTS. THEIR RELATIVE LOCATION IS SHOWN IN RELATION TO THE BOUNDARY LINES SHOWN.
9) THE SURVEY MAP SHOWN HEREON DOES NOT NECESSARILY CONTAIN ALL OF THE INFORMATION OBTAINED OR DEVELOPED BY THE UNDERSIGNED SURVEYOR IN HIS FIELD WORK, OFFICE WORK OR RESEARCH.
10) THE HEREON DESCRIBED PROPERTY IS LOCATED WITHIN AN AREA OF MINIMAL FLOODING, FLOOD HAZARD ZONE DESIGNATIONS "AE-5","AE-6" "VE-8" ACCORDING TO THE FLOOD INSURANCE RATE MAP No. 12085C0134H, EFFECTIVE DATE FEBRUARY 19, 2020.
11) THE PROPERTY LINES OF LOTS 11-13 AND 27-28 EXTEND TO THE WATERS EDGE OF THE ST. LUCIE RIVER.
12) PARCEL HAS A PHYSICAL ACCESS POINT TO NORTH FLAGLER AVENUE AS SHOWN.
13) THE PUBLISHED PHYSICAL ADDRESS FOR THIS PROPERTY IS 75 NORTHWEST FLAGLER AVENUE PER THE MARTIN COUNTY PROPERTY APPRAISER.
14) ALL AVAILABLE ABOVE GROUND UTILITIES SHOWN HEREON.
15) ITEMS NOTED WITH "REFERENCE" REFERS TO A SURVEY PREPARED OTHERS, DATED DECEMBER 2003, AS SUPPLIED BY CLIENT.
16) ALL ABOVE GROUND PARCEL IMPROVEMENTS ARE SHOWN.
17) SURVEY METHODS, INCLUDING THE UTILIZATION OF LIDAR, DRONE, RTK GPS, ROBOTIC, AND/OR TRADITIONAL METHODS WAS USED DURING THIS SURVEY. A REDUNDANCY OF MEASUREMENTS ARE USED TO VERIFY DATA. RELATIVE HORIZONTAL ACCURACY OF THE FEATURES SHOWN ARE ESTIMATED TO BE BETWEEN 0.05' TO 0.15'±.
18) AERIAL DATA, IF SHOWN, PROVIDED BY THE FDOT AERIAL PHOTO LOOKUP SYSTEM.
19) ALL LANDS DESCRIBED IN THE LEGAL DESCRIPTION ARE CONTIGUOUS AND ARE FREE OF ANY GAPS AND ENCROACHMENTS.
20) ITEMS NOTED WITH "REFERENCE" REFERS TO A SURVEY PREPARED OTHERS, DATED DECEMBER 2003, AS SUPPLIED BY CLIENT.
21) ALL ABOVE GROUND PARCEL IMPROVEMENTS ARE SHOWN.
22) SURVEY METHODS, INCLUDING THE UTILIZATION OF LIDAR, DRONE, RTK GPS, ROBOTIC, AND/OR TRADITIONAL METHODS WAS USED DURING THIS SURVEY. A REDUNDANCY OF MEASUREMENTS ARE USED TO VERIFY DATA. RELATIVE HORIZONTAL ACCURACY OF THE FEATURES SHOWN ARE ESTIMATED TO BE BETWEEN 0.05' TO 0.15'±.
23) AERIAL DATA, IF SHOWN, PROVIDED BY THE FDOT AERIAL PHOTO LOOKUP SYSTEM.
24) MEASURED BEARINGS AND DISTANCES, DEPICTED WITH AN (M), ALONG THE PARCEL 4, WAS CALCULATED UTILIZING THE CURRENT LOCATION OF EXISTING BREAKWATERS AND SEAWALLS AS INTENDED BY THE VERBIAGE PRESENTED IN TIFF DEED, AS RECORDED IN O.R. BOOK 142, PAGE 411.
25) MEASURED BEARINGS AND DISTANCES, DEPICTED WITH AN (M), ALONG THE LEASEHOLD PARCEL, WAS CALCULATED UTILIZING THE CURRENT LOCATION OF THE EXISTING BREAKWATERS AS INTENDED BY THE VERBIAGE PRESENTED IN THE MAP PORTION OF THE SUBMERGED LAND LEASE APPLICATION, PREPARED BY MATHERS AND ASSOC, DATED 04-24-1985.
26) PARCELS 1, 2, 3, 4, 5, AND THE LEASEHOLD PARCEL ARE CONTIGUOUS, WITHOUT ANY GAPS, GORES, OR HIATUSES
27) ALL LANDS DESCRIBED IN THE LEGAL DESCRIPTION ARE CONTIGUOUS AND ARE FREE OF ANY GAPS AND ENCROACHMENTS.
28) ALL CHAINLINK FENCES ARE LOCATED WITHIN THE BOUNDARY LIMITS AND DO NOT CROSS THE BOUNDARY LINES.
29) CHANNEL LOCATION AND WIDTH PROVIDED BY REGULATORY DIVISION, PALM BEACH GARDENS OFFICE, U.S. ARMY CORPS OF ENGINEERS.

LINE TABLE

LINE NUMBER	BEARING	DISTANCE
L-1	N16°11'44"E	24.19'
L-2	N06°20'23"W	25.81'
L-3	N01°18'59"W	23.68'
L-4	N02°54'29"E	17.79'
L-5	S84°20'52"	15.87'
L-6	S02°21'48"	59.04'
L-7	N09°37'06"	11.44'
L-8	N13°25'06"E	14.46'
L-9	N12°54'57"E	27.03'
L-10	N07°22'05"E	36.86'
L-A	*N19°00'42"W*	*25.03'*
L-B	*N25°31'33"W*	*25.00'*
L-C	*N25°47'38"W*	*24.91'*
L-D	*N18°32'37"W*	*24.89'*
L-E	*N08°36'39"W*	*25.74'*
L-F	*N00°30'17"W*	*25.29'*
L-G	*N20°41'08"E*	*10.67'*
L-H	*S87°06'04"E*	*15.70'*

PER LANDLEASE PARCEL

GROUND CONTROL

NORTHING	EASTING	ELEVATION	ID
1044945.546	896336.592	2.818	GCP-3
1044778.302	896356.176	3.011	GCP-4
1044863.133	896510.903	2.566	GCP-5
1044763.476	896682.49	2.494	GCP-6
1044469.56	896591.108	2.423	GCP-7
1044545.931	896358.805	3.691	GCP-8
1045234.762	896548.159	2.285	GCP-9
1045097.03	896536.754	2.362	GCP-10
1045100.67	896792.902	2.601	GCP-11
1044663.532	896762.153	2.528	GCP-12
1044790.117	896172.485	2.35	GCP-14
1044601.997	896194.261	3.412	GCP-15
1044271.028	896303.157	8.792	GCP-16
1044895.443	896115.123	7.799	GCP-17
1045249.313	896285.083	2.157	GCP-18
1045217.519	896206.775	7.059	GCP-19

ABBREVIATION AND SYMBOL LEGEND

(C)	CALCULATED	D.E.	DRAINAGE EASEMENT
(D)	DEED	DIA	DIAMETER
(M)	FIELD MEASURED	DIP	DUCTILE IRON PIPE
(P)	PLAT DATA	E	EAST OR EASTING
AL	ARC LENGTH	EHH	ELECTRIC HAND HOLE
ASPH	ASPHALT	EL.	ELEVATION
BFP	BACK FLOW PREVENTER	ELEV	ELEVATION
BM	BENCHMARK	EOW	EDGE OF WATER
BPM	BURIED WATER LINE MARKED BY OTHERS	F.B.P.E.	FLORIDA BOARD OF PROFESSIONAL ENGINEERS
BST	BELL SOUTH TELEPHONE	F.F.E.	FINISHED FLOOR ELEVATION
C.D.	CHORD DISTANCE	F.O.	FIBER OPTIC
CCCCL	COASTAL CONSTRUCTION CONTROL LINE	FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION
CCR	CERTIFIED CORNER RECORD	FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
CL	CENTERLINE	FM	FORCE MAIN
CLF	CHAIN LINK FENCE	FND	FOUND
CM	CONCRETE MONUMENT	FOHH	FIBER OPTIC HAND HOLE
CMP	CORRUGATED METAL PIPE	FP&L	FLORIDA POWER AND LIGHT
CONC	CONCRETE	FT	FOOT
CPP	CONCRETE POWER POLE	GCP	GROUND CONTROL POINTS
D.B.	DEED BOOK	GIS	GEOGRAPGIC INFORMATION SYSTEMS

GPM	BURIED SANITARY LINES MARKED BY OTHERS	N.R.	NON RADIAL
GV	GAS VALVE	N/A	NOT AVAILABLE
HDPE	HIGH DENSITY POLYETHLENE PIPE	N/D	NON DESCRIPT NAIL AND DISK
HWF	HOG WIRE FENCE	NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
I.R.C.	INDIAN RIVER COUNTY	NGVD 29	NATIONAL GEODETIC VERTICAL DATUM OF 1929
IN	INCH	No.	NUMBER
INV	INVERT	O.R.B.	OFFICIAL RECORDS BOOK
IP	IRON PIPE	OHW	OVER HEAD WIRES
IR	IRON ROD	OPM	BURIED COMMUNICATION LINES MARKED BY OTHERS
IR/C	IRON ROD AND CAP	P.B.	PLAT BOOK
L	LENGTH	P.B.C.	PALM BEACH COUNTY
L.A.E.	LIMITED ACCES EASEMENT	P.C.	POINT OF CURVATURE
M.C.	MARTIN COUNTY	P.C.C.	POINT OF COMPOND CURVE
MAG NAIL	MAG BRAND NAIL	P.O.B.	POINT OF BEGINING
MAG/D	MAG BRAND NAIL AND DISK	P.O.C.	POINT OF COMMENCEMENT
MHWL	MEAN HIGH WATER LINE	P.O.T.	POINT OF TERMINUS
MLWL	MEAN LOWER WATER LINE	P.T.	POINT OF TANGENCY
MON	MONUMENT	P.U.&D.E.	PUBLIC UTILITY AND DRAINAGE EASEMENT
MP	METAL PIPE	PCN	PARCEL CONTROL NUMBER
N	NORTH OR NORTHING	PCP	PERMNANT CONTROL POINT

PG	PAGE	SQ. FT.	SQUARE FEET
PK NAIL	PARKER-KALON NAIL	STA:	STATION
PK/D	PARKER-KALON NAIL & DISK	SV	SEWER VALVE
PLS	PROFESSIONAL LAND SURVEYOR	T.O.N.	TOP OF NUT
PPM	BURIED IRRIGATION LINES MARKED BY OTHERS	TOB	TOB OF BANK/BERM
PRM	PERMNANT REFERENCE MONUMENT	TOE	TOE OF SLOPE
PSL	PORT SAINT LUCIE, FLORIDA	TSCB	TRAFFIC SIGNAL CONTROL BOX
PVC	POLYVINYL CHLORIDE	TWNSHP	TOWNSHIP
R	RADIUS	TYP	TYPICAL
R/C	ROD AND CAP	U.E.	UTILITY EASEMENT
R/W	RIGHT-OF-WAY	UNK	UNKNOWN
RCP	REINFORCED CONCRETE PIPE	VCP	VITRIFIED CLAY PIPE
RGE	RANGE	W	WEST
RIS.	COMMUNICATION RISER	WF	WOOD FENCE
RLS	REGISTERED LAND SURVEYOR	WM	WATER METER
RPM	BURIED ELECTRICAL LINES MARKED BY OTHERS	WPP	WOOD POWER POLE
RTK	REAL TIME KINEMATIC	WV	WATER VALVE
S	SOUTH	X 0.0	TOPOGRAPHIC DATA ON A SOFT SURFACE
S.L.C.	ST. LUCIE COUNTY	X 0.00	TOPOGRAPHIC DATA ON A HARD SURFACE
SEC	SECTION	YPM	BURIED GAS LINE MARKED BY OTHERS

= BACK FLOW PREVENTER
= BENCHMARK
= CATCH BASIN
= COMM OR POWER VAULT
= CONCRETE UTILITY POLE
= ELECTRIC HAND HOLE
X 0.00 = EXISTING ELEVATION
= GUY WIRE ANCHOR
= HANDICAP
= HYDRANT
= LIGHT POST
= METAL UTILITY POLE
= MONITORING WELL
= OVERHEAD WIRE
= SIGN
= STREET LIGHT
= UNDETERMINED HANDHOLD
= UNDETERMINED RISER
= VALVE
= WATER SERVICE METER
= WOOD UTILITY POLE
= AIR RELEASE VALVE
= FPL MANHOLE
= COMMUNICATION MANHOLE
= SANITARY MANHOLE
= STORMWATER DRAINAGE MANHOLE
= UNKNOWN DRAINAGE MANHOLE

MICHAEL T. OWEN, PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA REGISTRATION #5556

SIGNATURE DATE

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L.B. CERTIFICATE OF AUTHORIZATION 8098

CANTON — DRAWN BY
OWEN — CHECKED BY
20-290 — FILENAME
SHEET 1 — LAYOUT
NO SCALE THIS SHEET — SCALE
AUGUST 18, 2020 — DATE

DATE	REVISION COMMENTS
3/7/22	ADDED MAN&PROVE LOCATION IN DETAIL ON SHEET 3 OF 3
11/19/21	ADDED TOPO INFO IN DETAIL ON SHEET 3 OF 3
9/25/2021	ADDED LEASEHOLD PARCEL AND GOVERNMENT LOT 3
8/25/2021	ADDED BOUNDARY INFO FOR A PORTION OF GOVERENMENT LOT 3

BOUNDARY AND TOPOGRAPHIC SURVEY
WITH TREE LOCATIONS AND SUBSURFACE SCANNING
FOR: MIDDLE ISLAND MANAGEMENT & DEVELOPMENT, LLC.
STUART, FLORIDA — MARTIN COUNTY

ENGINEERS & SURVEYORS ENVIRONMENTAL
10250 VILLAGE PARKWAY
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1 OF 2

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THIS SURVEY WAS MADE WITH LOVE.

S. W. DIXIE HIGHWAY
(RIGHT-OF-WAY VARIES)
(F.D.O.T. 89010-2501)

EAST RIGHT OF WAY DIXIE HIGHWAY

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

A PORTION OF GOVERNMENT LOT 3

LOT "B" (P.B. 4, PG. 98 SLC NOW MC, FL)

L=216.17' R=802.22'
Δ=15°26'20"(C)(D)

L=128.17' R=702.22'
Δ=10°27'28"(C)(D)

P.O.B.
SET 5/8" IRC (LB8098)

A PORTION OF GOVT LOT 3
PCN:0538410009000000310
OWNER: CITY OF STUART
(UNDEVELOPED)

P.O.C.
FOUND 3x3 CONCRETE MONUMENT DISTURBED

SET 5/8" IRC (LB8098)

WITNESS LINE N05°49'39"E 97.21'

SEE DETAIL (SHEET 3 OF 3)

PARCEL 5
LOTS 27-28
BLOCK 20 (P)

PARCEL 3
LOTS 19-26
BLOCK 20 (P)

PARCEL 2
LOTS 14-18
BLOCK 20 (P)

PARCEL 1
LOTS 11-13
BLOCK 20 (P)

PARCEL 4
TRUSTEES OF THE INTERNAL IMPROVEMENT FUND OF THE STATE OF FLORIDA
O.R.BOOK 142, PAGE 411

100' RIGHT OF WAY
FLORIDA EAST COAST RAILWAY
(PLATTED)

EXISTING TRACKS

FOUND 1" IRON ROD

GCP No. 17

GCP No. 14

GCP No. 13

GCP No. 15

GCP No. 18

GCP No. 19

GCP No. 4

GCP No. 3

GCP No. 8

GCP No. 5

GCP No. 10

GCP No. 9

GCP No. 11

GCP No. 12

R: 716.78' (P)
R: 626.78'(M) (REFERENCE)
AL: 581.73'(M) (REFERENCE)

POINT OF COMMENCEMENT PARCEL 4 NORTH WEST CORNER LOT 14, BLOCK 20 (P) TIF DEED O.R.BOOK 142, PG 411

POINT OF COMMENCEMENT LEASEHOLD PARCEL NORTH WEST CORNER LOT 11, BLOCK 20 (P) SOVEREIGNTY SUBMERGED LANDS LEASE

POINT OF BEGINNING PARCEL 4 NORTH LINE LOT 14, BLOCK 20 (P) AT SHORELINE PER TIF DEED O.R.BOOK 142, PG 411 SET 5/8" IRC (LB8098)

POINT OF BEGINNING LEASEHOLD PARCEL LOCATED 0.32' SOUTH OF MOST SOUTHEASTERLY CORNER OF EXISTING PIER (SOVEREIGNTY SUBMERGED LANDS LEASE)

LEASEHOLD PARCEL
SUBMERGED LAND LEASE AREA

MEAN HIGH WATER LINE ELEVATION -0.42' (NAVD88) AUGUST 25, 2021 @ 2:34 P.M.

MEAN HIGH WATER LINE FIELD LOCATED ON AUGUST 14, 2020 -0.42'(NGVD)

MEAN HIGH WATER LINE ABUTS SEAWALL

MEAN HIGH WATER LINE LOCATED ON 8.14.20

MEAN HIGH WATER LINE PER SUBMERGED LAND LEASE

APPROXIMATE MEAN HIGH WATER LINE

PLATTED SHORELINE

ST. LUCIE RIVER

FLAGLER AVE

Asphalt Pavement

AE-5

AE-6

VE-8

FLOOD ZONE LIMITS

8' CHAINLINK FENCE

1.5' CONCRETE SEAWALL ELEVATION: 2.8'± (ELEVATION VARIES)

3.7' CONCRETE SEAWALL ELEVATION: 3.2'±

1.5' CONCRETE SEAWALL ELEVATION: 3.0'± (ELEVATION VARIES)

1.5' CONCRETE SEAWALL ELEVATION: 2.6'± (ELEVATION VARIES)

18" CONCRETE SEAWALL TOP OF CAP: 2.63±

SEAWALL CAP HELD FOR ALIGNMENT PER DEED LANGUAGE (SEE NOTE 24)

SEAWALL CAP HELD FOR ALIGNMENT PER DEED LANGUAGE (SEE NOTE 28)

REFERENCE POINT CORNER CONCRETE IS HELD AS PROPERTY CORNER

BREAKWATER CAP AND ADJACENT SEAWALL HELD FOR ALIGNMENT PER DEED LANGUAGE. (SEE NOTE 24)

BREAKWATER CAP HELD FOR ALIGNMENT PER DEED LANGUAGE (SEE NOTE 28)

BREAKWATER CAP HELD FOR ALIGNMENT PER DEED LANGUAGE (SEE NOTE 24)

BREAKWATER CAP HELD FOR ALIGNMENT PER DEED AND SUBMERGED LAND LEASE LANGUAGE (SEE NOTES 24 & 25)

BREAKWATER WITH 6.9' CONCRETE CAP TOP ELEVATION: 2.5'± (ELEVATION VARIES)

TIFF DEED (O.R.B. 142, PG. 411)

LAND LEASE LINE INTERSECTS WITH THE EASTERLY EXTENSION OF OF THE SOUTH LINE OF LOT 13 AND THE EXISTING BREAKWATER (SEE NOTE 29)

RIPARIAN LINE (EXISTING LEASE LINE)

ADJACENT SEAWALL

MEAN HIGH WATER LINE ABUTS ADJACENT SEAWALL

ROCK

ASPHALT PARKING

GRASS AREA

CONCRETE DRIVE

OPEN CONCRETE AREA

COVERED CONCRETE AREA

CONCRETE PAD

CONCRETE FINGER 2.7±

CONCRETE FINGER PIER TOP: 3.0±

CONCRETE FINGER PIER TOP: 1.00'

CONCRETE FINGER PIER ELEVATION VARIES

RAMP

STEP

WET SLIP

UNKNOWN SUBSURFACE FEATURE

EXISTING GARAGE FFE: 3.46' ROOF: 13.50' 1,104± S.F.

EXISTING WAREHOUSE FFE VARIES: 3.55' ROOF HEIGHT: 38.45' 9,157± S.F.

EXISTING WAREHOUSE FFE VARIES: 3.65' TO 3.85' ROOF: 29.49' 15,100± S.F.

AREA OF COMM, FIRE, & STORM SUBSURFACE FEATURES; UNABLE TO CLEARLY DEPICT

EXISTING GARAGE FFE: 2.52' ROOF: 11.52' 1,570± S.F.

EXISTING SLAB FFE: 3.45'

EXISTING STORAGE FFE: X.XX' ROOF: 27.92' 2,245± S.F.

COVERED STORAGE

EXISTING GAS STORAGE AREA (SECURED)

12" RCP INV: 0.75'

12" RCP INV: 0.53'

12x18 ERCP INV: 0.34' UNDETERMINED CONNECTIVITY

MW1 MW2 MW3 MW4 MW5 MW6 MW7 MW8 MW9 MW10 MW11 MW15 MW17 MW22

POWER POLE

MONUMENT

WATER METER

FIRE PAD

Rock Wall

NOT NOTED

N17°00'34"E (M)
N17°09'E (REFERENCE)
N17°09'E (PLAT)
351.46'

N89°38'47"E(C)
285.480'

S89°49'23"W(D)
S89°18'47"W(C)
96.59'(D)(C)

N87°06'43"W 35.46'
(REFERENCE)
N87°15'09" 37.15'
(MEASURED)

S46°19'29"W(D)
S46°50'08"E(C)
16.33'(D)(C)

N04°55'W
168

N03°45'E (D)
130'

S03°45'E (D)
S03°45'E (M)
S03°45'E (C)
130'

N87°01'00"W 207.41'(M)
N87°21'51"W 259.58'(M)

S42°15'47"W 126.73'(M)

S10°42'15"W 124.32'(M)
S42°05'00"W 259.58'(D)

S44°21'57"W 9.14'(M)

S04°40'27"W 447.60'(D)
S04°34'21"W 446.37'(M)

N08°45'00"E (D)
247.72'

S87°01'00"E 319.00'(D)

S87°01'00"E 211.15'(D)
S87°21'51"E 209.87'(M)
S87°09'E 209.87'(M)
N86°55'10"W - 209.87'(M)
(LEASEHOLD PARCEL)

S87°06'04"E - 280.68'
(LEASEHOLD PARCEL)

S87°06'04"E - 234.63'
(LEASEHOLD PARCEL)

S07°15'52"W - 139.64'
(LEASEHOLD PARCEL)

S45°33'18"W - 15.85'(D)
S53°31'56"W - 17.88'(M)
(LEASEHOLD PARCEL)
(SEE NOTE 25)

N87°01'00"W 254.76' REFERENCE
218.00'(P)

PCN: 323741004020000619
OWNER: 151 NW FLAGLER LLC
ADDRESS: 151 NW FLAGLER AVE
(UNDEVELOPED)

L-1 L-2 L-3 L-4 L-5 L-6 L-7 L-8 L-9 L-10

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L.B. CERTIFICATE OF AUTHORIZATION 8098

DRAWN BY	CANTON
CHECKED BY	MTO
FILENAME	20-290
LAYOUT	SHEET 2
SCALE	AS SHOWN
DATE	AUGUST 18, 2020

DATE	REVISION COMMENTS
3/7/22	ADDED MANGROVE LOCATION IN DETAIL, ON SHEET 3 OF 3
11/19/21	ADDED TOPO INFO IN DETAIL ON SHEET 3 OF 3
9/23/21	ADDED TOPO INFO AND REVISED BOUNDARY OF GOVERNMENT LOT 3
8/25/2021	ADDED BOUNDARY INFO FOR A PORTION OF GOVERNMENT LOT 3

BOUNDARY AND TOPOGRAPHIC SURVEY
WITH TREE LOCATIONS AND SUBSURFACE SCANNING
FOR: MIDDLE ISLAND MANAGEMENT & DEVELOPMENT, LLC.

STUART, FLORIDA — MARTIN COUNTY

10250 VILLAGE PARKWAY
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2 OF 2

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THIS SURVEY WAS MADE WITH LOVE

NORTH

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

BENCHMARK
FND MAG/D
(MC D-2)
EL: 5.00'

S89°49'23"W(D)
S89°18'47"W(C)
68.37'(C)
69.50'(D)

L=319.98' R=922.81'
Δ=19°52'01"(C)(D)

L=154.67' R=597.53'
Δ=14°49'53"(C)(D)

S54°21'18"E(D)
S54°53'45"E(C) 92.61'(D)(C)

EAST RIGHT OF WAY
DIXIE HIGHWAY

LOT "B"
(P.B. 4, PG. 98
SLC NOW MC, FL)

A PORTION OF
GOVERNMENT LOT 3

L=216.17' R=802.22'
Δ=15°26'20"(C)(D)

S89°49'23"W(D)
S89°18'47"E(C) 285.48'

S. W. D I X I E H I G H W A Y
(RIGHT-OF-WAY VARIES)
(F.D.O.T. 89010-2501)

N17°28'35"E(D.O.T.)
N16°58'39"E 1538.99'

N16°57'59"E 1317.79'

EAST RIGHT OF WAY
DIXIE HIGHWAY

100' RIGHT OF WAY
FLORIDA EAST COAST RAILWAY
(PLATTED)

FLAGLER AVE

4" CHAIN FENCE

MEAN HIGH WATER LINE
ELEVATION -0.42' (NAVD88)
AUGUST 25, 2021 @ 2:34 P.M.

SEE DETAIL
(SHEET 3 OF 3)

PARCEL 5
LOTS 27-28
BLOCK 20 (P)

PARCEL 3
LOTS 19-26
BLOCK 20 (P)

PARCEL 2
LOTS 14-18
BLOCK 20 (P)

PARCEL 1
LOTS 11-13
BLOCK 20 (P)

PARCEL 4
TRUSTEES OF THE INTERNAL
IMPROVEMENT FUND OF THE STATE
OF FLORIDA
O.R.BOOK 142, PAGE 411

PCN: 3237411004020000 &
OWNER: 151 NW FLAGLER LLC
ADDRESS: 151 NW FLAGLER AVE
(DEVELOPED)

LEASEHOLD PARCEL
SUBMERGED LAND
LEASE AREA

AE-5
AE-6
VE-8

VE-8
TIFF DEED
(O.R.B. 142, PG. 411)

N07°49'27"W(C)
81.26'(D)(C)
N07°17'50"W(D)

N00°57'50"W(C)
47.14'(D)(C)
N00°25'23"W(D)

FIBERGLASS
HEADWALL

CHANNEL
MARKER
5803-2

N46°51'56"W(C) 129.38'(D)(C)
N46°19'29"W(D)

N06°40'04"W(C) 26.27'(D)(C)
N06°07'37"W(D)

N01°20'36"W(C) 41.70'(D)(C)
N00°48'09"W(D)

F.E.C. R/W LINE
50.00'
50.00'
F.E.C. R/W LINE

ST. LUCIE RIVER

SUBMERGED LAND LEASE
(O.R.B. 1361, PG. 184)

CENTER OF CHANNEL
(80' CHANNEL)
(SEE NOTE 29)

U.S. - 1 R/W LINE

U. S. H I G H W A Y 1
(322.50' PUBLIC RIGHT-OF-WAY)
(122' WIDE ASPHALT)

RIPARIAN LINE
(EXTENSION OF LEASE LINE)

DETAIL SCALE 1"=30'

SHEET PILE
RETAINING WALL
CONC PILLAR(TYP.)
NO MANGROVES LANDWARD OF MHWL
(DETERMINED BY OTHER)
PROPERTY(BY MHWL)
MANGROVES WATERWARD OF MHWL
(DETERMINED BY OTHER)
PROPERTY(BY DEED)
SUBMERGED LAND LEASE
(O.R.B. 1361, PG. 184)
EDW
FIBERGLASS HEADWALL

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CANTON	DRAWN BY
MTO	CHECKED BY
20-290	FILENAME
SHEET 2 LAYOUT	
AS SHOWN	SCALE
AUGUST 18, 2020	DATE

DATE	REVISION COMMENTS
3/7/22	ADDED MANGROVE LOCATION IN DETAIL ON SHEET 3 OF 3
11/19/21	ADDED TOPO INFO IN DETAIL ON SHEET 3 OF 3
10/12/21	UPDATED SURVEY AND ADDED A PORTION OF GOVERNMENT LOT 3
8/27/21	ADDED BOUNDARY INFO FOR PARCEL 4

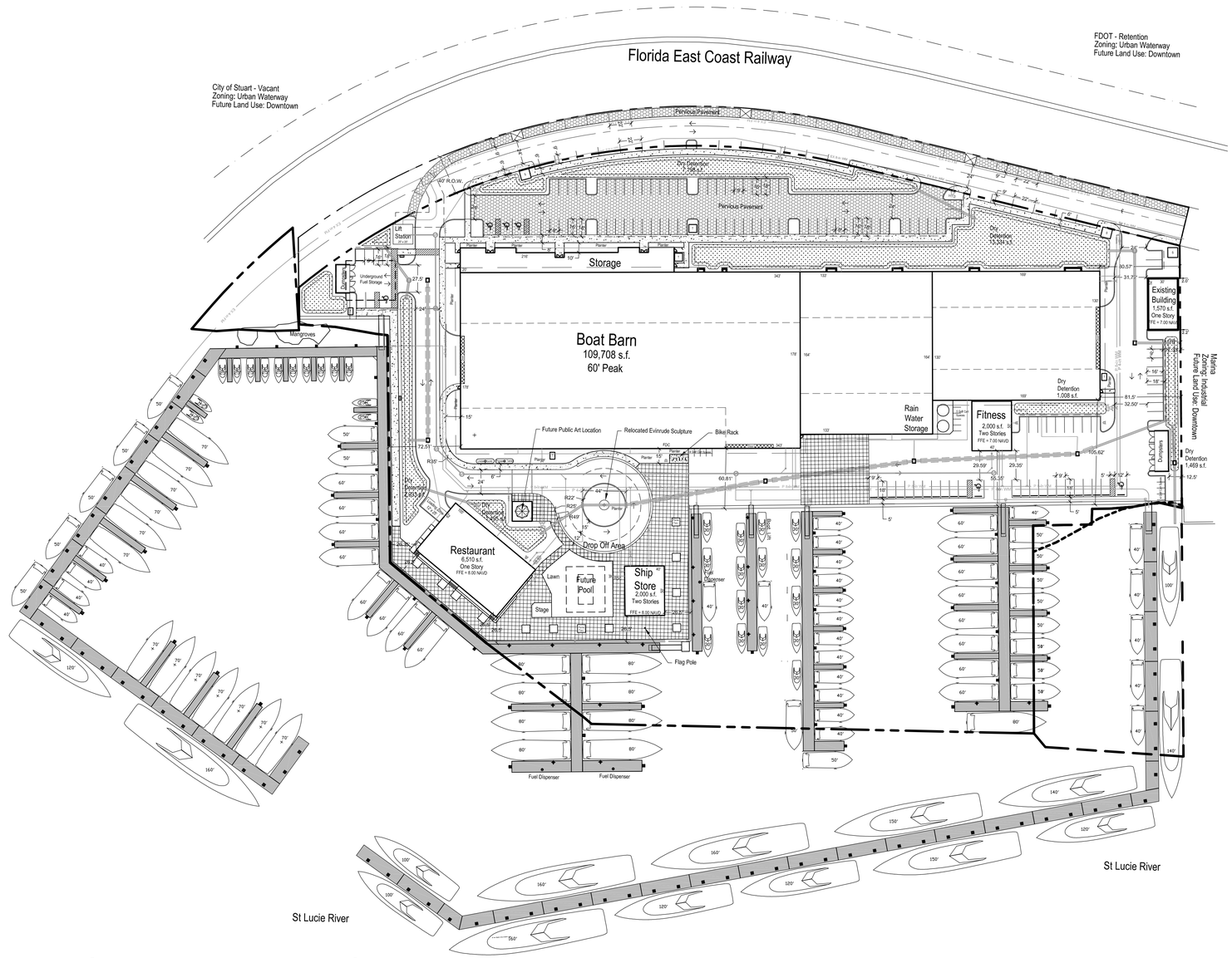
ALTA/NSPS LAND TITLE SURVEY
WITH TOPOGRAPHY, TREE LOCATIONS AND SUBSURFACE SCANNING
FOR: MIDDLE ISLAND MANAGEMENT & DEVELOPMENT, LLC.

STUART, FLORIDA

ENGINEERS & SURVEYORS
ENVIRONMENTAL
10250 VILLAGE PARKWAY
UNIT 201
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772-462-2455

20-290

3 OF 3



Site Data

Parcel Size:	471,182 s.f. +/-	10.81 Acres +/-
Parcel Control Number:	32-37-41-004-020-0011	
Site Address:	75 NW Flagler Avenue Stuart, FL 34994	
Dry Land Areas:	342,660 s.f. +/-	7.86 Acres +/-
Site:	305,228 s.f. +/-	7 Acres +/-
Right Of Way:	37,432 s.f. +/-	.86 Acres +/-
Submerged Land Areas:	128,522 s.f. +/-	2.95 Acres +/-
Total Marina Slips:		105
Total Dry Rack Spaces:		456
Maximum Building Height:		
Industrial		45' / 4 Stories
Urban Code / CRA		45' / 60'
Existing Use:		Former Boat Business
Proposed Use:		Marina Facility & Restaurant
Existing Zoning:		Industrial
Proposed Zoning:		Industrial
Future Land Use:		Industrial
Proposed Future Land Use:		Marine/Industrial
Impervious:	247,842 s.f.	5.69 Acres 72%
Project Site: (Including Right Of Way)		
Buildings: (Plan view outline)	121,788 s.f.	2.80 Acres
Impervious Pavements:	92,179 s.f.	2.125 Acres
Pervious Pavements:	14,371 s.f.	.325 Acres
Impervious Pool & Pool Deck:	3,915 s.f.	.09 Acres
Pervious Sidewalks:	15,589 s.f.	.35 Acres
Pervious (Open Space):	94,818 s.f.	2.17 Acres 28%
Project Site: (Including Right Of Way)		
Landscape Area:	28,198 s.f.	.645 Acres
Dry Retention Area:	36,660 s.f.	.85 Acres
Pervious Pavements:	14,371 s.f.	.325 Acres
Pervious Sidewalks:	15,589 s.f.	.35 Acres

Open Space:	Required:	Provided:
	No Minimum	19%

Parking Calculations:

	Required:	Provided:
Boat Dry Storage 1 Space / 10 Boat Storage Spaces	46	46
Marina 1 Space / 4 Boat Slips + 1 Space / Employee	27 27 See Below	27 27 See Below
Ship Store 1 Space / 250 s.f. (Multi-Use Building - Only 1,152 s.f. of sales area calculated)	5	5
Restaurant - Limited 1 Space / 4 Seats at maximum capacity (162 Seats) + 1 Space / Employee	41 41 See Below	41 41 See Below
Total Employees Marina Restaurant	27 14 13	27 14 13

Total employee count is 54 working varying shifts.
Includes the following:
Marina - management, ship store, sales / administration, marina support staff
= 28 (but not 28 at one time due to two (2) shifts) = 28 / 2 shifts = 14 Spaces
Restaurant - management and bar / kitchen support staff
= 26 (but not 26 at one time due to varying shifts) = 26 / 2 (or more) shifts = 13 Spaces

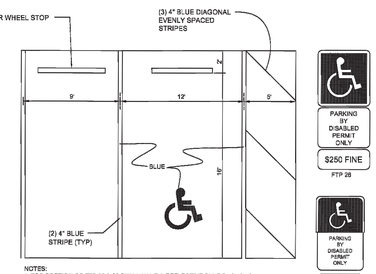
Total:	146	177 (31 Extra)
On Site:	146	121
Right Of Way:	0	56
Paved:	0	20
Grass Overflow:	0	36

General Notes

1. This project shall be completed in four phases.
2. All prohibited exotic plant species shall be removed prior to the issuance of a Certificate of Occupancy.
3. All required landscaping shall be installed prior to the issuance of a Certificate of Occupancy. Refer to the Landscape Plans for landscape details and specifications.
4. Refer to Construction Drawings for location of traffic control devices.
5. The applicant will request in writing, prior to any land clearing, that a field inspection be performed to determine if barricades have been properly installed on the site if required.
6. All signs will be reviewed for compliance with the applicable regulations at the time the sign permit is issued.
7. All building, parking and access areas shall document compliance with the requirements of the American Disabilities Act prior to the issuance of a building permit.
8. The parking areas shown on-site hereon are private and will be owned and maintained by the project owner.
9. Finished Floor Elevations 'FFE' are NAVD 88.
10. Water and sewer service shall be provided by City of Stuart Utilities.
11. Photometric site lighting plans shall be provided to the City of Stuart for review and approval prior to site development permit approval.

Standard & Handicap Parking Space Detail

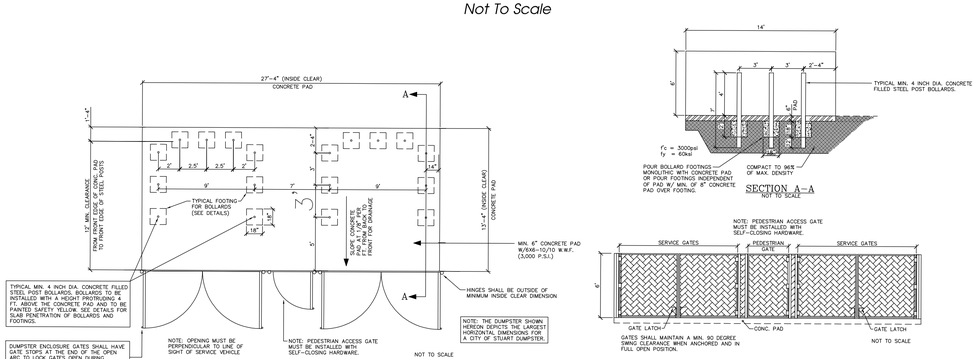
Not To Scale



NOTES:
1. TOP PORTION OF FTP 26 & 28 SHALL HAVE A REFLECTIVE BLUE BACKGROUND WITH WHITE REFLECTIVE SYMBOL AND BORDER.
2. BOTTOM PORTION SHALL HAVE A REFLECTIVE WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.
3. FTP 26 & 28 MAY BE FABRICATED ON ONE PANEL OR TWO.
4. FTP 26 IS FOR USE IN AREAS WHERE SPACE IS LIMITED.

City of Stuart Dumpster Detail

Not To Scale



CITY OF STUART DUMPSTER ENCLOSURE - SITE DETAIL
DOUBLE DUMPSTER w/ RECYCLING
& GREASE DISPOSAL CONTAINER

Site Plan

North
Scale: 1" = 60'
0 30' 60' 120'

Conceptual Design Group, Inc.
Landscape Architecture - Site Planning
900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

Atlantic Point Marina

City of Stuart, Florida

Job No.	21-0609
Drawn By	JWS
Submittal Dates	8-27-2021
	12-3-2021
	2-21-2022
	3-31-2022
Revision Dates	
City Comments #1	12-3-2021
City Comments #2	2-21-2022
City Meeting	3-31-2022

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Sheet 1 of 1

Florida East Coast Railway

Sheet L-3

Sheet L-3

Sheet L-2

Pervious Pavement

Pervious Pavement

Lift Station 20' x 20'

Underground Fuel Storage

Dumpsters

Mangroves

Storage

Boat Barn
109,708 s.f.
60' Peak

Dry Detention 12,334 s.f.

Existing Building
1,570 s.f.
One Story
FFE = 7.00 NAVD

Dry Detention 1,008 s.f.

Rain Water Storage

Fitness
2,000 s.f.
Two Stories
FFE = 7.00 NAVD

Dumpsters

Dry Detention 1,469 s.f.

Future Public Art Location

Relocated Evinrude Sculpture

Bike Rack

FDC

4 Golf Cart Spaces

Underground Propane Tanks

Dry Detention 2,933 s.f.

Loading Zone 12' x 35'

Dry Detention 1,495 s.f.

Restaurant
6,510 s.f.
One Story
FFE = 8.00 NAVD

Drop Off Area

Ship Store
2,000 s.f.
Two Stories
FFE = 8.00 NAVD

Lawn

Future Pool

Stage

Boat Lift

Fuel Dispenser

Flag Pole

Fuel Dispenser

Fuel Dispenser

St Lucie River

St Lucie River

Landscape Plan

North
Scale: 1" = 40'

0 20' 40' 80'

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City Comment DryDet	4-1-2022

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Sheet L-1 of 5

Pervious Pavement

Lift Station 20' x 20'

Storage

Dry Detention 13,334 s.f.

Boat Barn
109,708 s.f.
60' Peak

Rain Water Storage

Fitness
2,000 s.f.
Two Stories
FFE = 7.00 NAVD

5 Golf Cart Spaces

Future Public Art Location

Relocated Evinrude Sculpture

Bike Rack

4 Golf Cart Spaces

Underground Propane Tanks

Dry Detention 2,933 s.f.

Loading Zone 12' x 25'

Dry Detention 1,495 s.f.

Drop Off Area

Restaurant
6,510 s.f.
One Story
FFE = 8.00 NAVD

Lawn

Future Pool

Stage

Ship Store
2,000 s.f.
Two Stories
FFE = 8.00 NAVD

Fuel Dispenser

Boat Lift

Landscape Plan

North
Scale: 1" = 20'
0 10' 20' 40'

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Atlantic Point Marina

City of Stuart, Florida

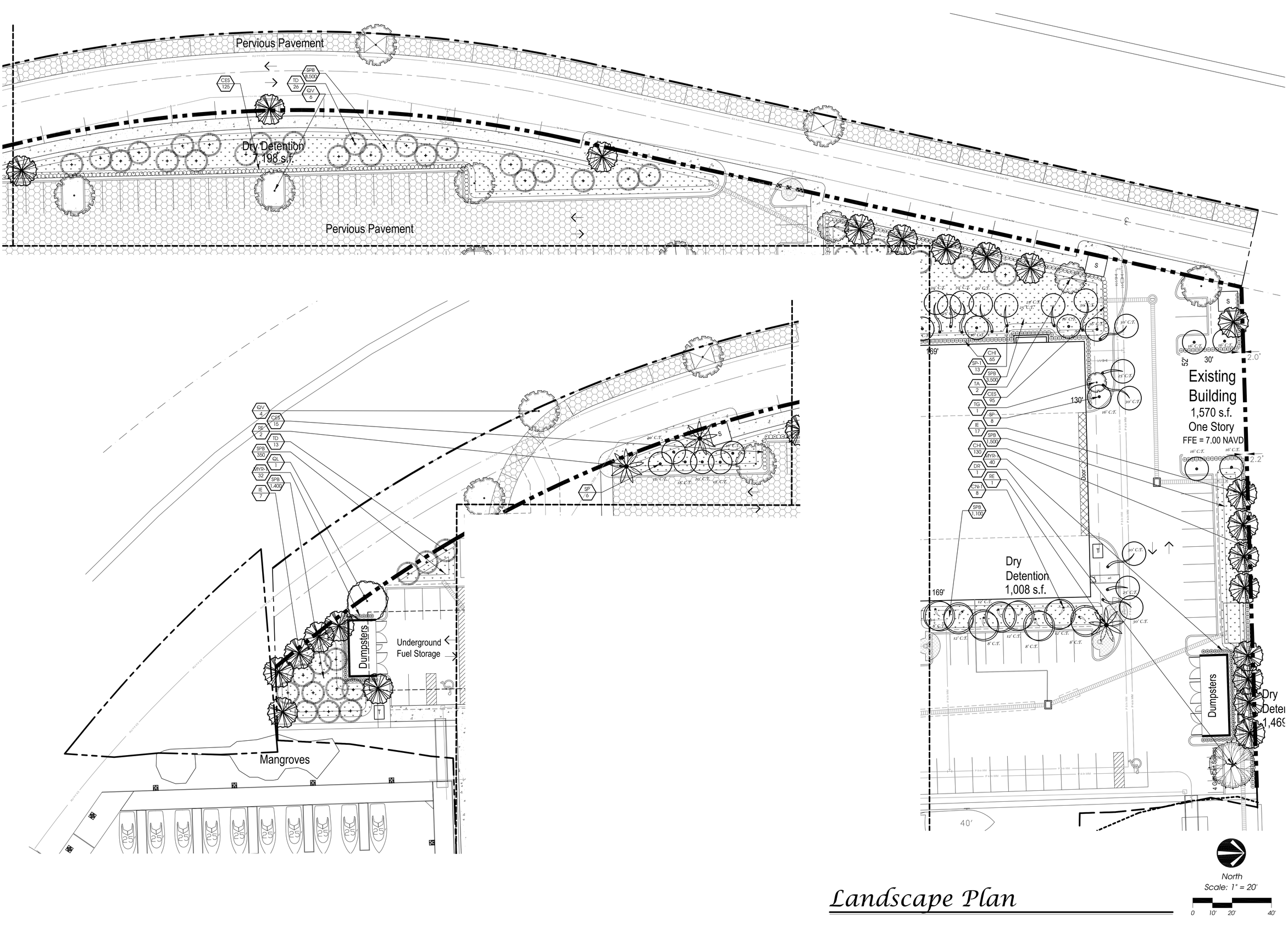
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City Comment DryDet	4-1-2022

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Sheet L-2 of 5



Landscape Plan

Conceptual Design Group, Inc.

Landscape Architecture - Site Planning

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Atlantic Point Marina

City of Stuart, Florida

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Sheet L-3 of 5

Landscape Data

Total Site Area:	471,182 s.f. +/-	10.81 Ac. +/-	100%
Dry Land Areas:	342,660 s.f. +/-	7.86 Acres +/-	
Site:	305,228 s.f. +/-	7 Acres +/-	
Right Of Way:	37,432 s.f. +/-	.86 Acres +/-	
Submerged Land Areas:	128,522 s.f. +/-	2.95 Acres +/-	

Landscape Area: (6.04.03.B.1)

Required: 20% of developed area = 342,660 x 20% = 68,532 — 68,532

Provided: — 64.858 (19%)

Trees:

Commercial Trees: (6.04.08.C)

Required: 1 Tree / 2,500 s.f. = 305,228 / 2,500 = 122 — 122

Provided: (104 Trees + 95 Palms = 199) (Meets 122 Minimum) 122

Terminal & Interior Island Trees Required: (6.04.07.C. 5 & 6)

Required: — 24

Provided: — 24

Shade Trees Required: (6.04.02.A.2)

Required: 50% of total required trees = 225 x 50% = 113 — 113

Provided: (18 Trees removed from R.O.W. Dry Retention Per City's Request) 95

Total Native Trees Required: (6.04.02.A.1)

Required: 50% of total required trees = 225 x 50% = 113 — 113

Provided: (84 Trees + 95 Palms = 179) (Meets 50% Minimum) 113

Total Trees Required: (Commercial + Islands + Buffers + Buildings) — 225

Total Trees Provided: 216 (104 Trees + 112 Palms = 216 Trees) (Meets 225 Minimum) 216

(18 Trees removed from R.O.W. Dry Retention Per City's Request)

Landscape Buffers:

Parking Buffer Adjacent to Right of Way (6.04.08.B) 10' Width

Required: 1 Tree / 25 L.F. = 750' / 25' = 30 — 30

Provided: — 30

Required: Hedge @ 2' O.C. = 750' / 2 = 375 — 375

Provided: — 375

Parking Buffer Adjacent to Private Property (6.04.07.B) 5' Width

Required: 1 Tree / 30 L.F. = 255' / 30' = 9 — 9

Provided: — 9

Required: Hedge @ 2' O.C. = 255' / 2 = 128 — 128

Provided: — 128

Building Foundations:

Planters Adjacent to Buildings (6.04.07.C.2) 5' & 2' Planter Width (Total Building Length = 1,200')

Required: 1 Tree / 30 L.F. = 1,200' / 30' = 40 — 40

Provided: — 40

Required: Shrubs @ 2' O.C. = 1,200' / 2 = 600 — 600

Provided: — 600

Landscape Data Notes:

1. Low shrubs are used in some areas to not block safe sight lines.
2. Some perimeter buffer trees were shifted into the dry retention areas adjacent to that section of buffer to allow for better water quality enhancement
3. Some perimeter buffer trees and interior trees are smaller to meet the requirements of FPL Right Tree Right Place Requirements

Plant List

QTY	SYM	SPECIES	COMMON NAME/DESCRIPTION	SIZE	SPACING	REMARKS	WATER USAGE
CANOPY / ORNAMENTAL TREES							
1	DR	DELONIX REGIA	ROYAL POINCIANA	12' x 6', 2.5" CAL.	A.S.	FULL CANOPY	LOW
24	IE*	ILEX x ATTENUATA 'EAGLESTON'	EAGLESTON HOLLY	14' x 6', 2.5" CAL.	A.S.	FULL CANOPY, 4' C.T., SPECIMEN	LOW
1	QL*	QUERCUS LAURIFOLIA	LAUREL OAK	12' x 6', 2.5" CAL.	A.S.	FULL CANOPY	LOW
5	QV-1*	QUERCUS VIRGINIANA	LIVE OAK	20' x 8', 4.5" DBH.	A.S.	FULL CANOPY	LOW
10	QV*	QUERCUS VIRGINIANA	LIVE OAK	12' x 6', 2.5" CAL.	A.S.	FULL CANOPY	LOW
10	TA	TABEBUIA AUREA	YELLOW TABEBUIA	12' x 6', 2.5" CAL.	A.S.	FULL CANOPY	LOW
9	TG	TIBOUCHINA GRANULOS	TIBOUCHINA STANDARD	5' O.A./3' SPRD.	A.S.	FULL CANOPY	LOW
44	TD*	TAXODIUM DISTICHUM	BALD CYPRESS	12' x 6', 2.5" CAL.	A.S.	FULL CANOPY	LOW
PALMS							
13	CN	COCUS NUCIFERA 'MAYPAN'	MAYPAN COCONUT PALM	SEE PLAN	A.S.	STRAIGHT TRUCKS, FULL CANOPY	LOW
19	CN-1	COCUS NUCIFERA 'MAYPAN'	MAYPAN COCONUT PALM	SEE PLAN	A.S.	CURVED FAT TRUCKS, FULL CANOPY	LOW
8	PT	PTYCHOSPERMA ELEGANS	ALEXANDER PALM	12' C.T.	A.S.	DOUBLE STRAIGHT TRUCKS, FULL CANOPY	LOW
29	RE*	ROYSTONEA ELATA	ROYAL PALM	12' C.T.	A.S.	FULL CANOPY, STRAIGHT FAT TRUNK, MATCHED	LOW
29	SP*	SABLE PALMETTO	SABAL PALM	SEE PLAN	A.S.	STRAIGHT SLICK TRUNKS	LOW
37	SP-1*	SABLE PALMETTO	SABAL PALM	SEE PLAN	A.S.	CURVED SLICK TRUNKS	LOW
LARGE SHRUBS / HEDGES / ACCENTS							
480	CHI*	CHRYSOBALANUS ICACO	COCOPLUM	#3, 2' x 2'	2' O.C.	FULL & THICK	LOW
235	CES*	CONOCARPUS ERECTUS VAR. SERICEUS	SILVER BUTTONWOOD	#3, 2' x 2'	2' O.C.	FULL & THICK	LOW
72	MYR-1*	MYRICANTHES FRAGRANS	SIMPSON STOPPER	#7, 4' x 2'	2' O.C.	FULL & THICK	LOW
MED. SHRUBS / GROUNDCOVERS / VINES / SOD							
21,350	SPB-1*	SPARTINA BAKERI	SAND CORDGRASS	LINER	12" O.C.	FULL & THICK	LOW
	SOD-1	PASPALUM NOTATUM	BAHIA SOD			GRASS PARKING AREAS - SEE SPECS	LOW
	SOD	STENOTAPHRUM SECUNDATUS	ST. AUGUSTINE SOD			SEE SPECS	HIGH
		* = Florida Native					

Dry Retention Areas

IN AREAS AS SHOWN, INSTALL PER MANUFACTURE'S SPECIFICATIONS "COIR MAT 90" COCONUT MAT BY GRANITE ENVIRONMENTAL (WWW.GRANITEENVIRONMENTAL.COM 888-703-9889) TO STABILIZE THE SLOPES OF THE DRY RETENTION AREA TO PREVENT EROSION. BOTTOM OF DRY RETENTION AREA AND ALL SLOPES SHALL BE PLANTED WITH SPARTINA BAKERI 12" ON CENTER. MAT SHALL BE ON THE SIDE SLOPES ONLY AND 3' PAST THE TOP OF BANK (UNDER THE SOD) AND 3' PAST THE TOE OF SLOPE AT THE BOTTOM OF THE BASIN. IN AREAS WHERE SOD IS INSTALLED ADJACENT TO DRY RETENTION AREAS, ONLY BAHIA SOD SHALL BE USED. IN AREAS WHERE THIS IS NOT SHOWN IN PLAN VIEW, INSTALL BAHIA SOD IN THE RETENTION AREAS.

Xeriscape Points

Option	Points
Utilization of moisture sensing controller other than rain switch	5
Plan submitted with low, moderate and high water usage zones indicated on the Landscape Plan	5
25% - 50% of the required shrubs are made up of drought tolerant species from the list	5
51% or more of the required trees are made up of drought tolerant species from the list	10
Sod area less than 50% of Landscape area	10
Utilization of mulch other than Cypress mulch	5
Utilization of compacted mulched planting beds at least three inches deep in all planted areas except Ground Cover	10
Points Required:	50
Points Provided:	50

Landscape Plan

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Sheet L-4 of 5

Landscape Specifications

1. All tree and plant material to be Florida No. 1 or better, as classified in "Grades and Standards for Nursery Plants", Part 1 and Part II, State of Florida, Dept. of Agriculture, Tallahassee. All plants not listed in "Grades and Standards for Nursery Plants" shall conform to a Florida No. 1 as to: (1) health and vitality, (2) condition of foliage, (3) root system, (4) freedom from pest or mechanical damage, (5) heavily branched and densely foliated according to the accepted normal shape of the species.
2. Undersizing or substitution of one species or cultivar for another species is a breach of contract and will be "Rejected" at the time of final landscape inspection unless approved by Landscape Architect.
3. Project Warranty: All plant material shall be warranted for a period of one (1) year after date of substantial completion against defects, including death and unsatisfactory growth, except for defects resulting from abuse or damage by others or unusual phenomena or incidents which are beyond the contractor's control.
4. Any and all conditions which the contractor feels will be detrimental to the success of the planting shall be brought to the owner or representative's attention.
5. The contractor shall verify the location of underground utilities prior to commencing work on any project area.
6. Mulch planting areas with 3" layer of Melaleuca, Eucalyptus, or Enviromulch. Cypress Mulch is NOT ACCEPTABLE. Planting beds to receive mulch throughout entire bed area.
7. All plants to be set to ultimate grade. No filling will be permitted around trunks or stems. Mulch to be kept a minimum of 2" away from trunks and stems.
8. Planting trees and shrubs: Excavate hole per planting detail. When plant is set, place additional backfill consisting of a 50% mixture of Peat humus and natural soil around the base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Water again after placing final layer of backfill and before installing mulch.
9. Guy and stake trees in 3 directions with galvanized wire, through flexible hose chafing guards, with wooden stake anchors immediately after planting. (See Detail)
10. Trees and shrubs shall be fertilized with a complete natural organic fertilizer with a ratio of approximately 3:0:2 or 3:0:3 (e.g. one labeled 12-0-8). Similar analysis such as 16-0-8 (4:0:2) can also be used. Fertilizers that are slow release, controlled release, sulphur coated or with nitrogen as IBDU or ureaformaldehyde have extended release period. Thirty to fifty percent of the nitrogen should be water insoluble or slow release.

Palms should receive a complete granular fertilizer formulated for palms ("Palm Special") at a rate of 5 to 8 lbs. per palm.

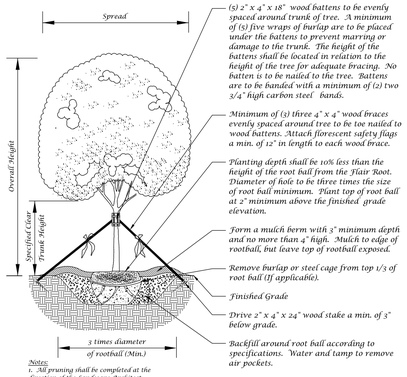
Agriform 20-0-5 twenty-one gram planting tablets may be substituted for granular fertilizer. If utilized, the following rates shall be utilized; Position plant in hole, Backfill halfway up the rootball. Place tablet(s) beside rootball about 1" from root tips. Do not place tablet(s) in bottom of hole.

1 Gallon 1 Tablet
3 Gallon 2 Tablets
25 Gallon & B&B Trees 2 per 1" caliper

11. All planting areas and sod to be irrigated to provide 100% coverage. Shop drawings to be submitted by the irrigation contractor for approval prior to installation.
12. Maintain trees, shrubs, and other plants by watering, cultivating, and weeding as required for healthy growth. Restore planting saucers and mulch. Tighten and repair stake and guying and reset trees and shrubs to proper grade or vertical position as required. Spray as necessary to keep trees and shrubs free of insects and disease. The contractor shall begin maintenance immediately after planting and shall continue maintenance through final acceptance when Certificate of Occupancy is issued to the General Contractor by City and project is released by the General Contractor to Client.
13. Prune trees and shrubs only to remove damaged branches as directed by the Landscape Architect.
14. Planting Lawns: Provide clean, strongly rooted, uniformly sized strips of Stenotaphrom secundatus Floritam (unless otherwise noted), machine stripped not more than 24 hours prior to laying. Grade and roll prepared lawn surface. Water thoroughly but not to create muddy soil conditions. Lay sod strips with tight joints, roll or tamp lightly, and water thoroughly.
15. Maintain positive drainage, no planting is to block drainage.
16. Drainage Testing
    Prior to planting of trees, palms, and specimen material, each planting pit shall be tested in the following manner to verify adequate drainage.
    A) Dig each planting pit to the minimum specified size.
    B) Fill the planting pit with (12") twelve inches of water. If the water level in the planting pit drops (4") four or more inches within (4) four hours, the drainage is sufficient and a drainage channel is not required. If the water level drops less than (4") four inches within the (4) four hour period, then a drainage channel is required,
    C) When a drainage channel is required, the drainage channel must extend down through the non porous soil and into porous soil. (See Drainage Testing Detail)
    D) Discard all material removed from the drainage channel.
    E) When backfilling the planting pit, add course gravel to the drainage channel. Also, care must be taken to keep the consistency of the soil mix the same throughout the planting pit.

NOTES:
1. Contractor to include drainage testing for all trees and palms in bid. If drainage is inadequate, the soil specification in item #8 above shall be revised for site conditions. Contractor shall notify the Owner and Landscape Architect of poor drainage conditions in writing and written direction will be provided to the contractor of appropriate soil mixture specification to be used.
2. All fertilizers shall meet the City of Stuart & Martin County's fertilizer ordinance.

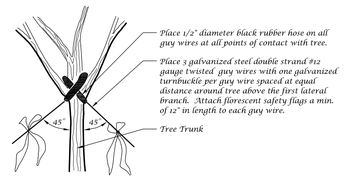
Landscape Details



Notes:
1. All pruning shall be completed at the direction of the Landscape Architect.
2. No nails shall be driven into tree

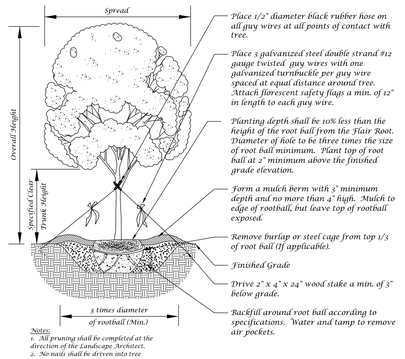
Large Tree Planting Detail (5" Caliper or Greater)

Not to Scale



Guy Wire Attachment Detail

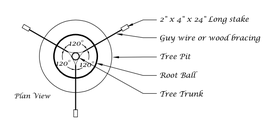
Not to Scale



Notes:
1. All pruning shall be completed at the direction of the Landscape Architect.
2. No nails shall be driven into tree

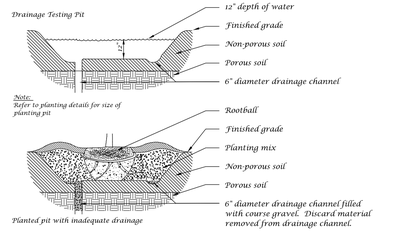
Tree Planting Detail

Not to Scale



Staking Detail

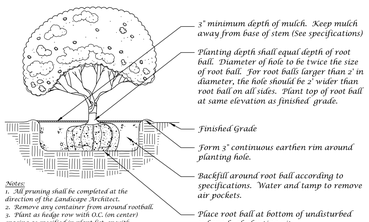
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Note:
Refer to planting details for size of planting pit

Drainage Testing Detail

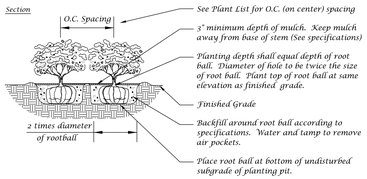
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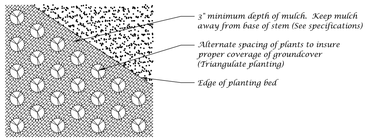


Notes:
1. All pruning shall be completed at the direction of the Landscape Architect.
2. Remove any container from around rootball.
3. Plant as hedge row with O.C. (on center) spacing as specified in plant list, or with triangular spacing as a mass.

Shrub Detail

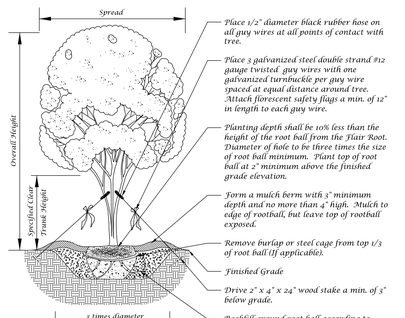
Not to Scale





Ground Cover Detail

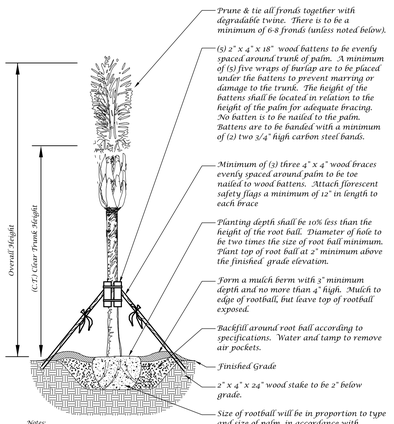
Not to Scale



Notes:
1. All pruning shall be completed at the direction of the Landscape Architect.
2. No nails shall be driven into tree

Multi-Trunk Tree Planting Detail

Not to Scale



Notes:
1. Hurricane cut Sabal Palms are acceptable.
2. All Washingtonia and Sabal Palms to be booted unless otherwise noted in plant list.
3. Palms with burned or marred trunks will not be accepted.

Palm Planting Detail

Not to Scale

Landscape Plan

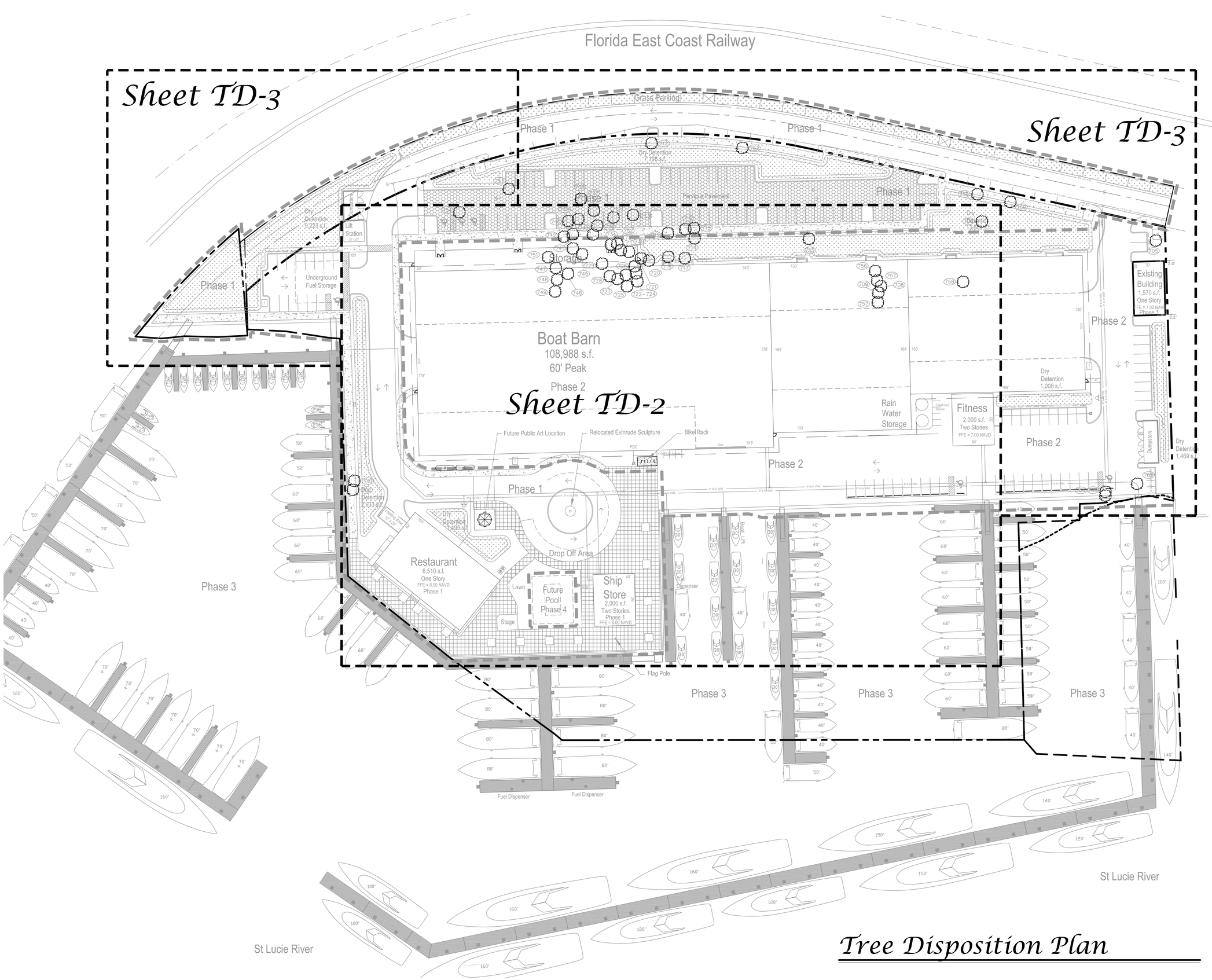
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Sheet L-5 of 5



Tree Disposition Plan

North
Scale: 1" = 40'
0 20' 40' 80'

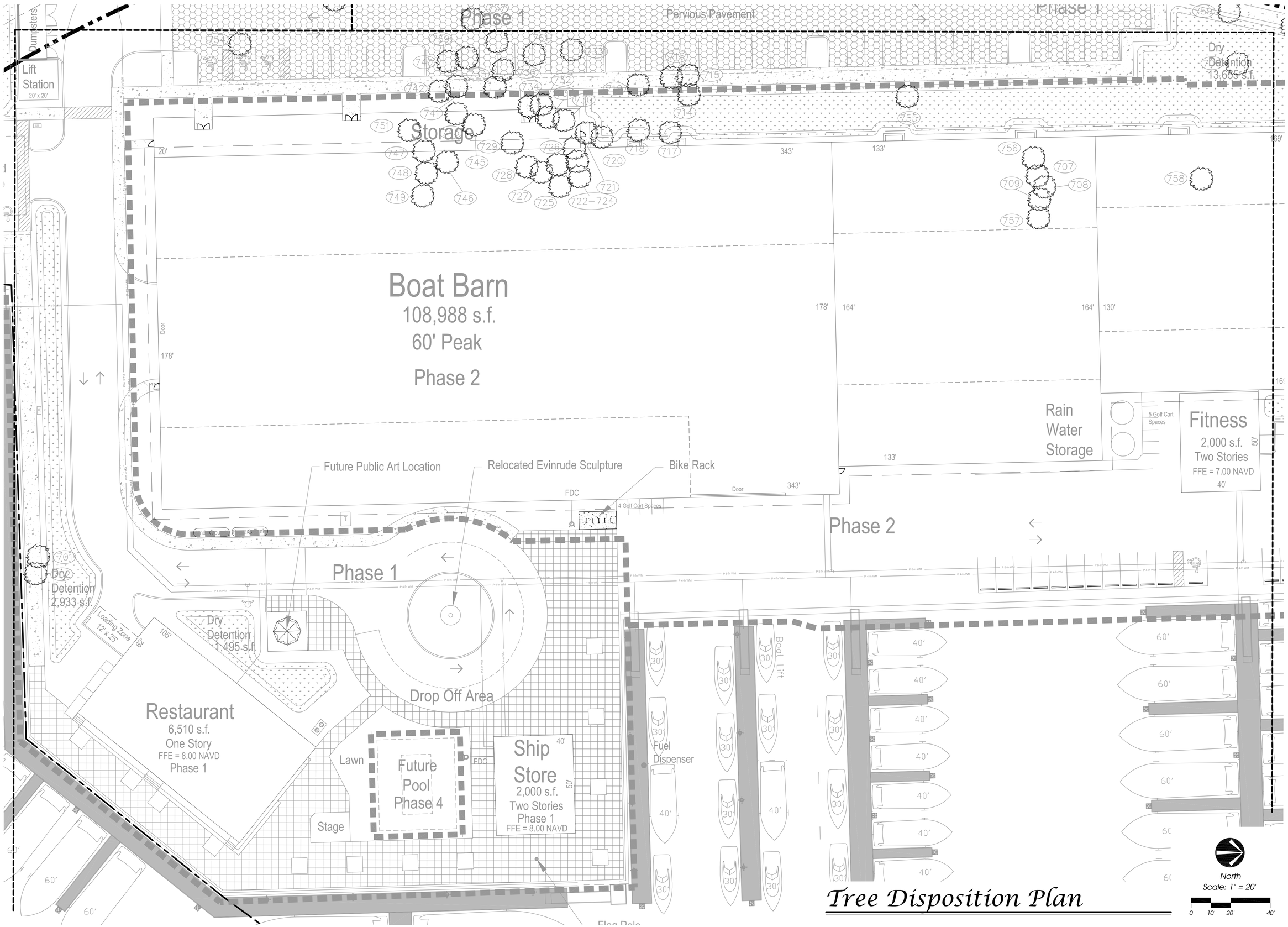
Conceptual Design Group, Inc.
Landscape Architecture - Site Planning
900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

Atlantic Point Marina
City of Stuart, Florida

Job No.	21-0609
Drawn By	JWS
Submittal Dates	9-21-2021
	12-3-2021
	3-7-2022
Revision Dates	
City Comments #1	12-3-2021
City Comments #2	3-7-2022

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Sheet TD-1 of 4



Tree Disposition Plan

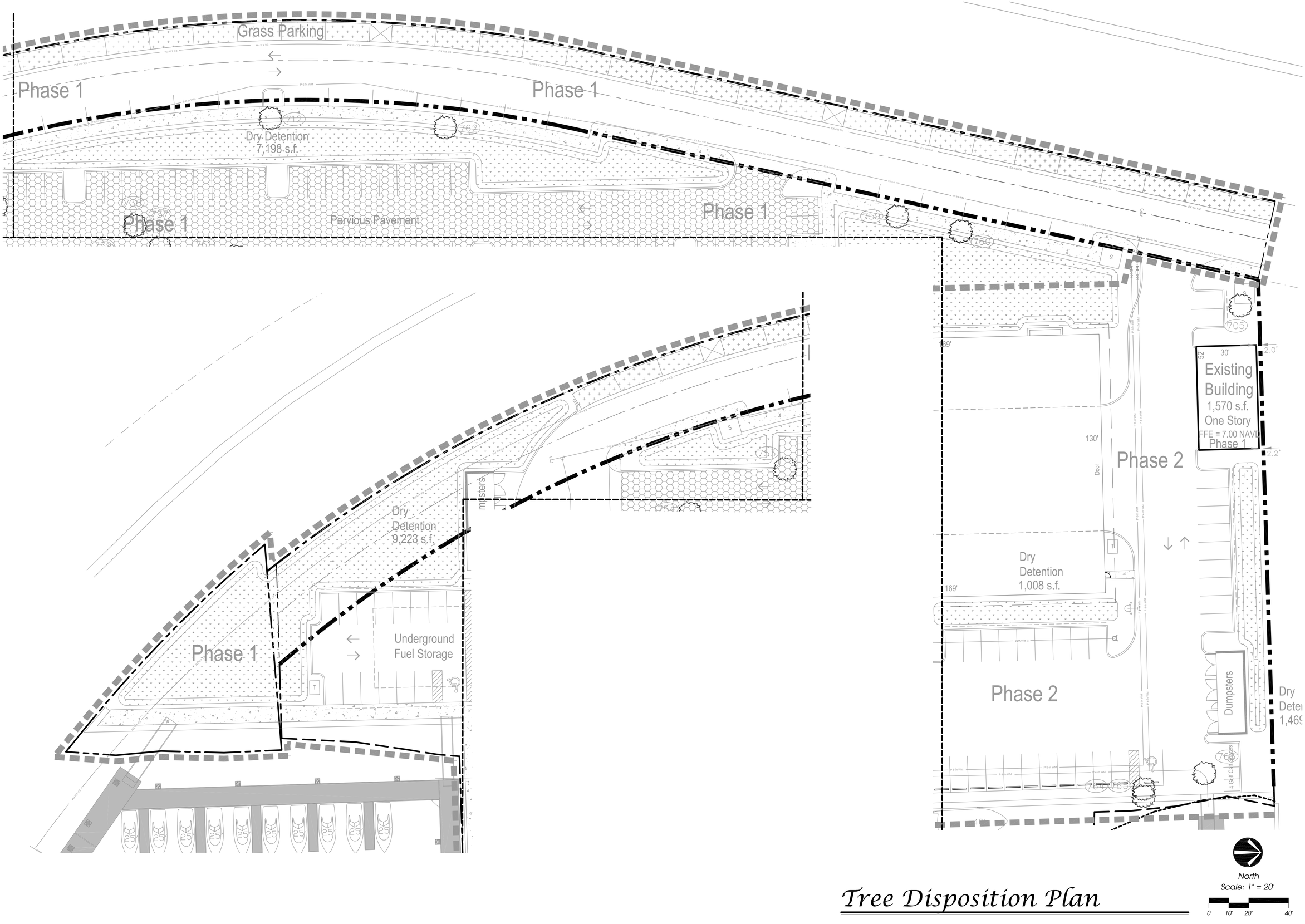
Conceptual Design Group, Inc.
Landscape Architecture - Site Planning
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Stuart, Florida 34994
(772) 344-2340
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Atlantic Point Marina
City of Stuart, Florida

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Revision Dates	
City Comments #1	12-3-2021
City Comments #2	3-7-2022

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Sheet TD-2 of 4



Tree Disposition Plan

Conceptual Design Group, Inc.

Landscape Architecture - Site Planning

900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

Atlantic Point Marina

City of Stuart, Florida

Job No.	21-0609
Drawn By	JWS
Submittal Dates	9-21-2021
	12-3-2021
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Revision Dates	
City Comments #1	12-3-2021
City Comments #2	3-7-2022

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Sheet TD-3 of 4

Tree & Palm Legend & Disposition Chart

SYMBOL	SPECIES	COMMON NAME	NATIVE
CU	COCOLOBA UVIFERA	SEAGRAPE	Y
DT	DIOSPYROS TEXANA	TEXAS PERSIMMON	Y
FI	FICUS BENJAMINA	WEEPING FIG	N
HK	BAUHINIA BLAKEANA	HONG KONG ORCHID	N
LI	LAGERSTROEMIA INDICA	CREPE MYRTLE	N
MN	MANGIFERA INDICA	MANGO	N
AW	ACOELOR WRIGHTII	PAUROTIS PALM	Y
CN	COCUS NUCIFERA	COCONUT	N
PR	PHOENIX RECLINATA	SENEGAL DATE PALM	N
SP	SABAL PALMETTO	SABAL PALM	Y

Tree/Palm #	Tree/Palm Type	D.B.H.	Spread	Height	C.T.	Remove	Remain	Relocate	Mitigation Required	Notes
701	SP				23	X			N	Poor Condition
702	SP				22	X			N	Poor Condition
705	PR			30'	30'			X	N	Specimen
706	FI	49	40	40		X			N	Fair Condition
707	SP				18	X			N	
708	SP				18	X			N	
709	SP				16	X			N	
712	SP				10	X			N	
713	SP				18	X			N	
714	SP				18	X			N	
715	SP				20	X			N	
716	SP				25	X			N	
717	SP				25	X			N	
718	SP				28	X			N	
719	SP				30	X			N	
720	SP				22	X			N	
721	SP				25	X			N	Severe Trunk Damage
722	SP				22	X			N	
723	SP				22	X			N	
724	SP				20	X			N	
725	SP				20	X			N	
726	SP				25	X			N	
727	SP				20	X			N	
728	SP				28	X			N	
729	SP				25	X			N	
730	SP				22	X			N	
731	SP				30	X			N	
732	SP				22	X			N	
733	SP				26	X			N	
734	SP				22	X			N	
735	SP				20	X			N	
736	SP				25	X			N	
737	SP				25	X			N	
738	SP				22	X			N	
739	SP				28	X			N	Split Trunk
740	SP				35	X			N	
741	SP				30	X			N	
742	SP				30	X			N	
743	SP				35	X			N	
745	SP				30	X			N	
746	SP				25	X			N	
747	SP				30	X			N	
748	SP				25	X			N	Severe Trunk Damage
749	SP				20	X			N	Severe Trunk Damage
750	SP				30	X			N	
751	SP				30	X			N	
752	SP				28	X			N	
753	SP				30	X			N	
754	SP				30	X			N	
755	HK	38	30	25		X			N	Poor Condition/Exotic
756	CU	Clump	25	25		X			N	Poor Condition/Bad Root System - Trunks 6,7,9,10,12,12
757	SP				18	X			N	
758	MN	18	35	35		X			N	Fruit Tree
759	DT	10	20	15		X			N	Severe Lean/Fallen
760	LI	Clump	15	15		X			N	Trunks 3,3,4,6
761	SP				20	X			N	Four Suckers
762	AW	Clump		12	12	X			N	Poor Condition
763	CN				10	X			N	Consider Relocation
764	CN				6	X			N	Consider Relocation
765	CU	Clump	30	30		X			N	Fair Condition, Severe Lean, Adjacent To Shoreline W/ Exposed Roots

Tree Disposition Plan

Conceptual Design Group, Inc.
Landscape Architecture - Site Planning
900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

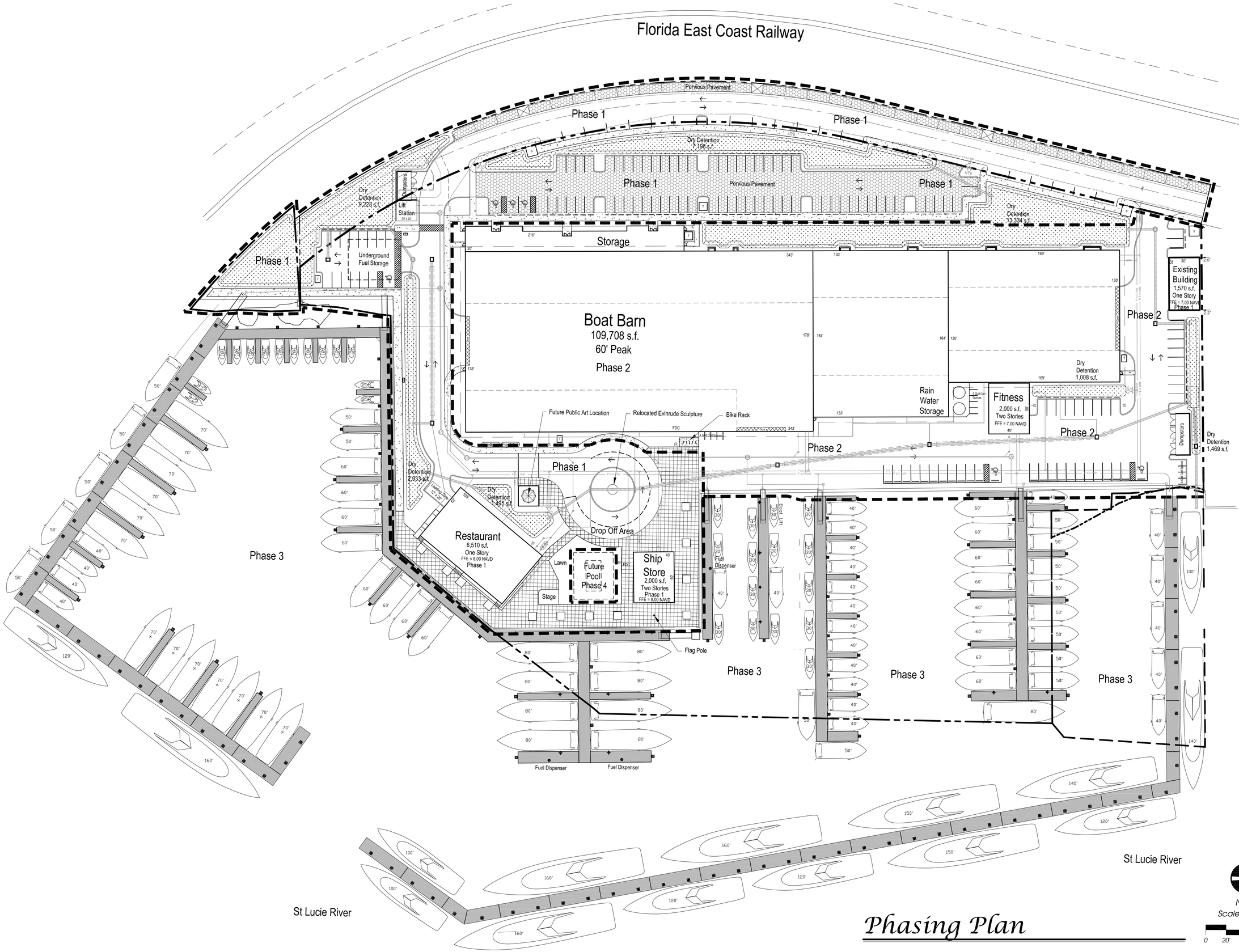
Atlantic Point Marina
City of Stuart, Florida

Job No. 21-0609
Drawn By JWS
Submittal Dates 9-21-2021
12-3-2021
3-7-2022

Revision Dates
City Comments #1 12-3-2021
City Comments #2 3-7-2022

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Sheet TD-4 of 4



Phasing Plan

North
Scale: 1" = 40'

0 20' 40' 80'

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Landscape Architecture - Site Planning
900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

Atlantic Point Marina

City of Stuart, Florida

Job No.	21-0609
Drawn By	JWS
Submittal Dates	11-16-2021
	12-3-2021
	2-21-2022
Revision Dates	
City Comments #1	12-3-2021
City Comments #2	2-21-2022

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Sheet 1 of 1

LEGEND			
EXISTING METER		EXISTING UTILITY POLE	
PROPOSED SIGN		PROPOSED DRAINAGE INLET	
PROPOSED MITERED END SECTION		EXIST. DRAINAGE INLET	
HANDICAP PARKING SYMBOL		EXISTING STREET LIGHT	
XX.XX SPOT ELEVATION		PROPOSED LIGHT POLE (SINGLE)	
PROPOSED CONCRETE		DRAINAGE FLOW ARROW	
PROPOSED TURF BLOCK		PROPOSED LIGHT POLE (DOUBLE)	
PROPOSED PAVEMENT	SPACES	PARKING STALL COUNT	
PROPOSED DRY DETENTION		PROPOSED PERVIOUS PAVEMENT	
PROPOSED PAVERS		PROPOSED DRAINAGE PIPE	

(IN FEET)
1 inch = 50 ft.

EAST RIGHT OF WAY
DIXIE HIGHWAY

100' RIGHT OF WAY
FLORIDA EAST COAST RAILWAY
(PLATTED)

FLAGLER AVE

PCN:0538410000000000310
OWNER: CITY OF STUART
(UNDEVELOPED)

PCN:3327410040200006819
OWNERS: 151 NW FLAGLER LLC
AUDREY'S 151 NW FLAGLER AVE
(DEVELOPED)

AE-5
AE-6
VE-8

ST. LUCIE RIVER

ST. LUCIE RIVER

General Data
Name: SU-30
Library: AASHTO 2011 (US)
Region: North America
Type: Medium Truck CB
Class: Commercial Truck
Lock to Lock Time: 6.0 sec.
Steering Lock Angle: 31.8 deg.
Creation Units: feet

Displayed Data
Plan View Data Profile View Data
Display Units: feet

Overall Vehicle Length: 30.00 ft

Current Part Data
Tractor: Full
Width: 8.00
Steering: Front Only

Front Axle Group
Axles: 1
Wheels: 2
Track: 8.00 ft

30.00
4.00 20.00 0.00

Rear Axle Group
Axles: 1
Wheels: 4
Track: 8.00 ft

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772-462-2455
www.edc-inc.com
F.B.P.E. CERTIFICATE OF AUTHORIZATION 9935
L.B. CERTIFICATE OF AUTHORIZATION 8098

DESIGNED BY: RJK
DRAWN BY: VER & JJL
FILENAME: 21-393 eng r5 autotum.dwg
LAYOUT: DELIVERY
SCALE: AS SHOWN
DATE: 24FEBRUARY22

REVISION COMMENTS
DATE

ATLANTIC POINT MARINA
VEHICULAR CIRCULATION PLAN
DELIVERY TRUCK
CITY OF STUART FLORIDA

R.J. KENNEDY, P.E. (DATE)
#56218
10250 SW VILLAGE PARKWAY - SUITE 201
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21-393

1 OF 1

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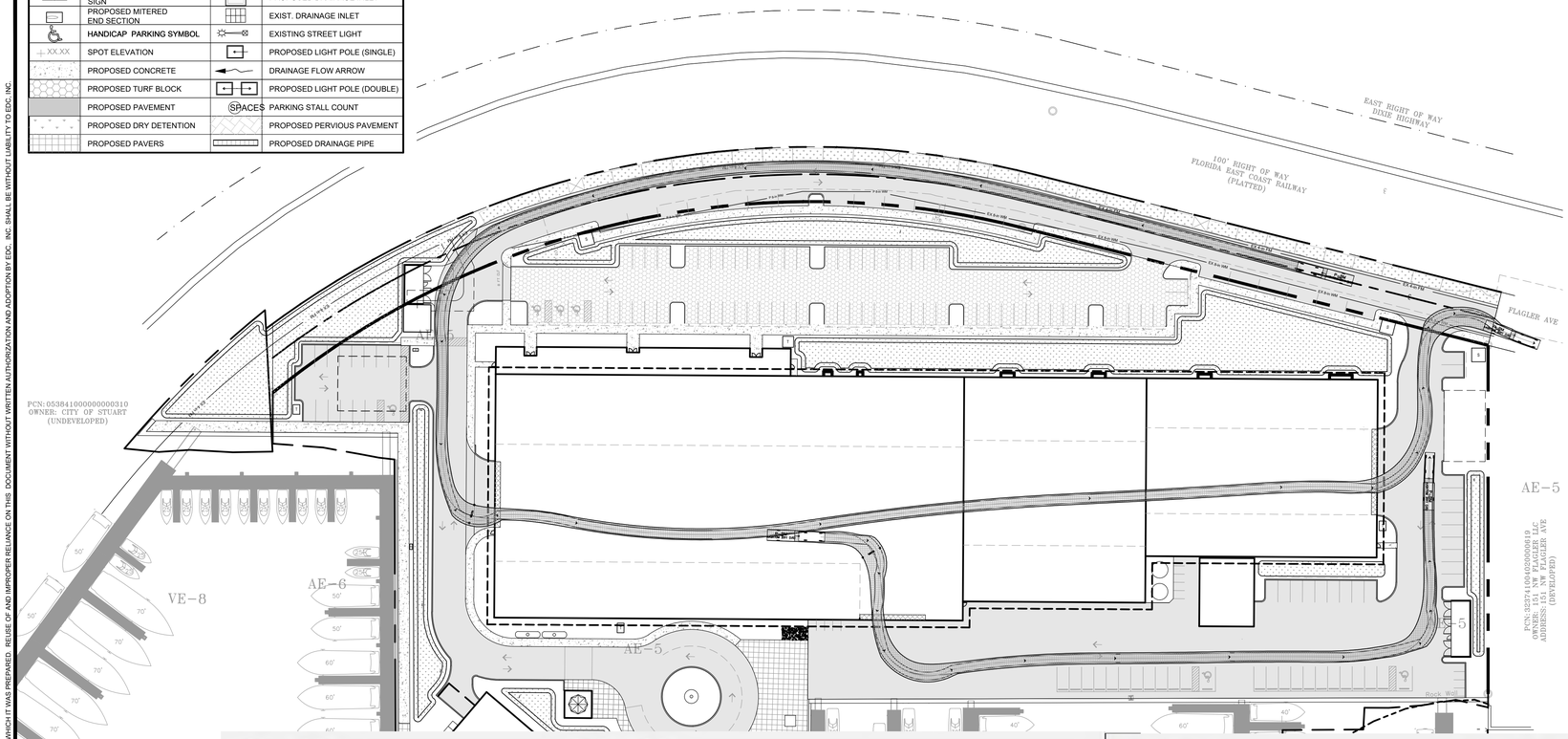
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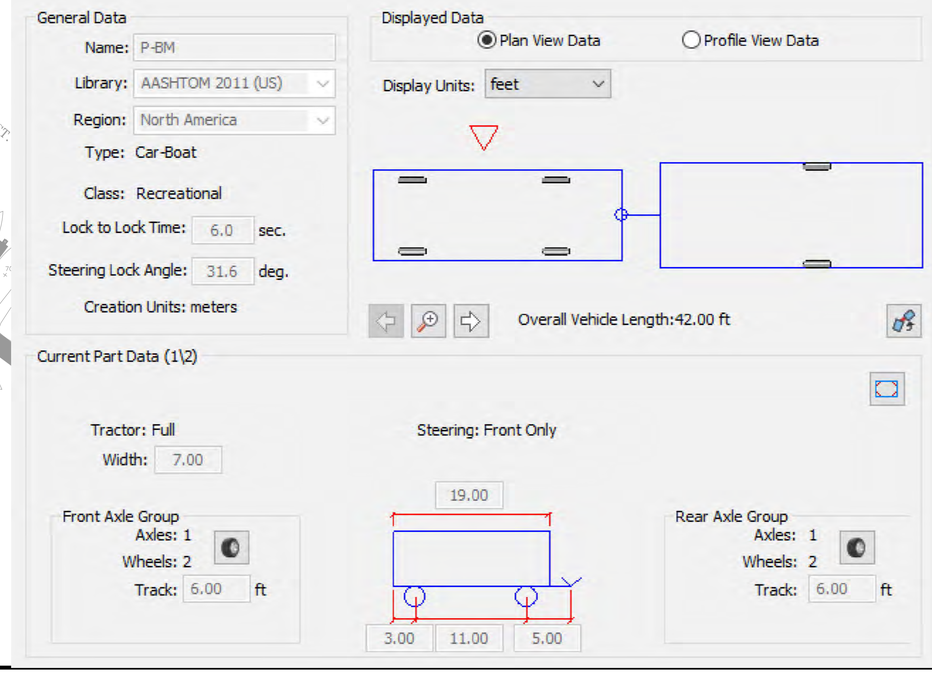
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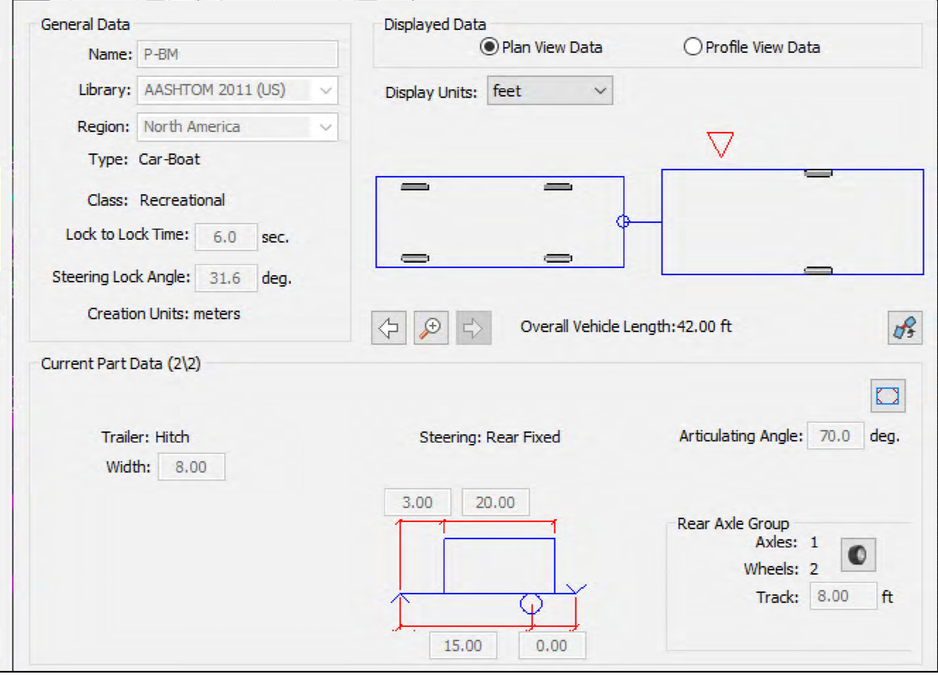
LEGEND

A	EXISTING METER		EXISTING UTILITY POLE
	PROPOSED SIGN		PROPOSED DRAINAGE INLET
	PROPOSED MITERED END SECTION		EXIST. DRAINAGE INLET
	HANDICAP PARKING SYMBOL		EXISTING STREET LIGHT
XX.XX	SPOT ELEVATION		PROPOSED LIGHT POLE (SINGLE)
	PROPOSED CONCRETE		DRAINAGE FLOW ARROW
	PROPOSED TURF BLOCK		PROPOSED LIGHT POLE (DOUBLE)
	PROPOSED PAVEMENT	SPACES	PARKING STALL COUNT
	PROPOSED DRY DETENTION		PROPOSED PERVIOUS PAVEMENT
	PROPOSED PAVERS		PROPOSED DRAINAGE PIPE

(IN FEET)
1 inch = 50 ft.







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DESIGNED BY	RJK
DRAWN BY	VER & JJL
FILENAME	21-393 eng r5 autotum.dwg
LAYOUT	VEHICLE-BOAT
SCALE	AS SHOWN
DATE	24FEBUARY22

REVISION COMMENTS

DATE

ATLANTIC POINT MARINA
VEHICULAR CIRCULATION PLAN VEHICLE WITH BOAT
CITY OF STUART FLORIDA

R.J. KENNEDY, P.E. (DATE)
#56218
10250 SW VILLAGE PARKWAY - SUITE 201
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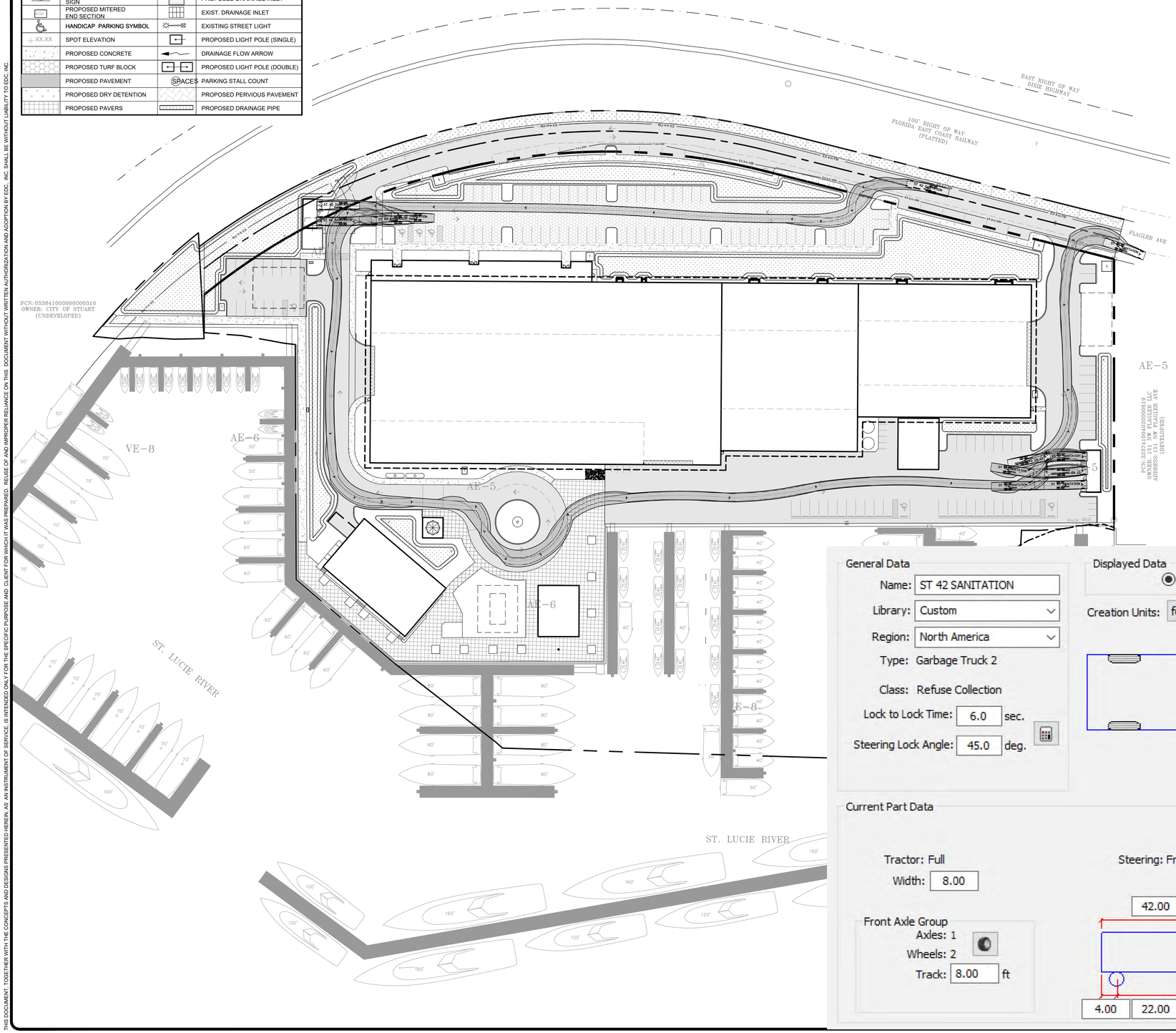
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LEGEND

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	PROPOSED MITERED END SECTION		EXIST. DRAINAGE INLET
	HANDICAP PARKING SYMBOL		EXISTING STREET LIGHT
XX.XX	SPOT ELEVATION		PROPOSED LIGHT POLE (SINGLE)
	PROPOSED CONCRETE		DRAINAGE FLOW ARROW
	PROPOSED TURF BLOCK		PROPOSED LIGHT POLE (DOUBLE)
	PROPOSED PAVEMENT	SPACES	PARKING STALL COUNT
	PROPOSED DRY DETENTION		PROPOSED PERVIOUS PAVEMENT
	PROPOSED PAVERS		PROPOSED DRAINAGE PIPE

0 50

(IN FEET)
1 inch = 50 ft.



General Data
Name: ST 42 SANITATION
Library: Custom
Region: North America
Type: Garbage Truck 2
Class: Refuse Collection
Lock to Lock Time: 6.0 sec.
Steering Lock Angle: 45.0 deg.

Displayed Data
Plan View Data / Profile View Data
Creation Units: feet

Overall Vehicle Length: 42.00 ft

Current Part Data
Tractor: Full
Width: 8.00
Steering: Front Only

Front Axle Group
Axles: 1
Wheels: 2
Track: 8.00 ft

42.00
4.00 22.00 0.00

Rear Axle Group
Axles: 2
Wheels: 4
Track: 8.00 ft

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772-462-2455
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VER & JJL DRAWN BY
21-393 eng r5 autotum.dwg FILENAME
GARBAGE LAYOUT
AS SHOWN SCALE
2/4/FEBRUARY/22 DATE

REVISION COMMENTS DATE

ATLANTIC POINT MARINA
VEHICULAR CIRCULATION PLAN GARBAGE TRUCK
CITY OF STUART FLORIDA

R.J. KENNEDY, P.E. (DATE)
#56218
10250 SW VILLAGE PARKWAY - SUITE 201
PORT SAINT LUCIE, FL 34987
772-462-2455

21-393

1 OF 1

LEGEND			
	EXISTING METER		EXISTING UTILITY POLE
	PROPOSED SIGN		PROPOSED DRAINAGE INLET
	PROPOSED MITERED END SECTION		EXIST. DRAINAGE INLET
	HANDICAP PARKING SYMBOL		EXISTING STREET LIGHT
XX.XX	SPOT ELEVATION		PROPOSED LIGHT POLE (SINGLE)
	PROPOSED CONCRETE		DRAINAGE FLOW ARROW
	PROPOSED TURF BLOCK		PROPOSED LIGHT POLE (DOUBLE)
	PROPOSED PAVEMENT	SPACES	PARKING STALL COUNT
	PROPOSED DRY DETENTION		PROPOSED PERVIOUS PAVEMENT
	PROPOSED PAVERS		PROPOSED DRAINAGE PIPE

(IN FEET)
1 inch = 50 ft.

EAST RIGHT OF WAY
DIXIE HIGHWAY

100' RIGHT OF WAY
FLORIDA EAST COAST RAILWAY
(PLATTED)

FLAGLER AVE

PCN:0538410000000000310
OWNER: CITY OF STUART
(UNDEVELOPED)

PCN: 3327414004020000619
OWNERS: 151 NW FLAGLER LLC
AUDREY'S 75 NW FLAGLER AVE
(DEVELOPED)

AE-5
AE-6
VE-8
AE-8

ST. LUCIE RIVER

ST. LUCIE RIVER

General Data

Name: FD -STUART
Library: Custom
Region: Local
Type: Fire Truck 2
Class: Emergency - Fire - Pumper
Lock to Lock Time: 6.0 sec.
Steering Lock Angle: 40.0 deg.

Displayed Data

(•) Plan View Data ( ) Profile View Data
Creation Units: inches

Overall Vehicle Length: 456.0 in

Current Part Data

Tractor: Full
Width: 115.2

Steering: Front Only

456.0
101.4 230.8 0.0

Front Axle Group
Axles: 1
Wheels: 2
Track: 82.9 in

Rear Axle Group
Axles: 2
Wheels: 4
Track: 82.9 in

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VER & JJL — DRAWN BY
21-393 eng r5 autotum.dwg — FILENAME
STUART-FD — LAYOUT
AS SHOWN — SCALE
24FEBUARY22 — DATE

REVISION COMMENTS — DATE

ATLANTIC POINT MARINA
VEHICULAR CIRCULATION PLAN FIRE TRUCK
CITY OF STUART — FLORIDA

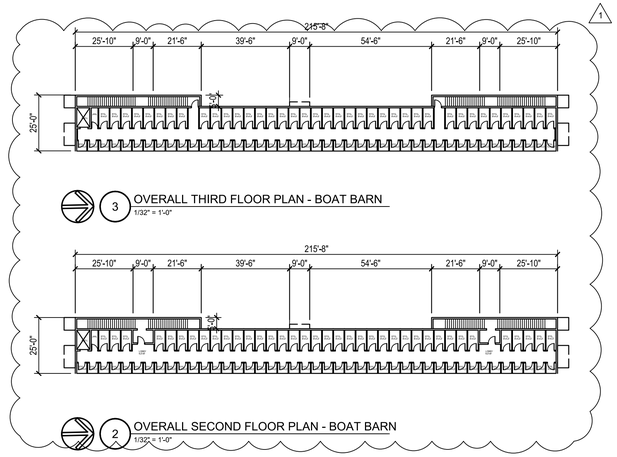
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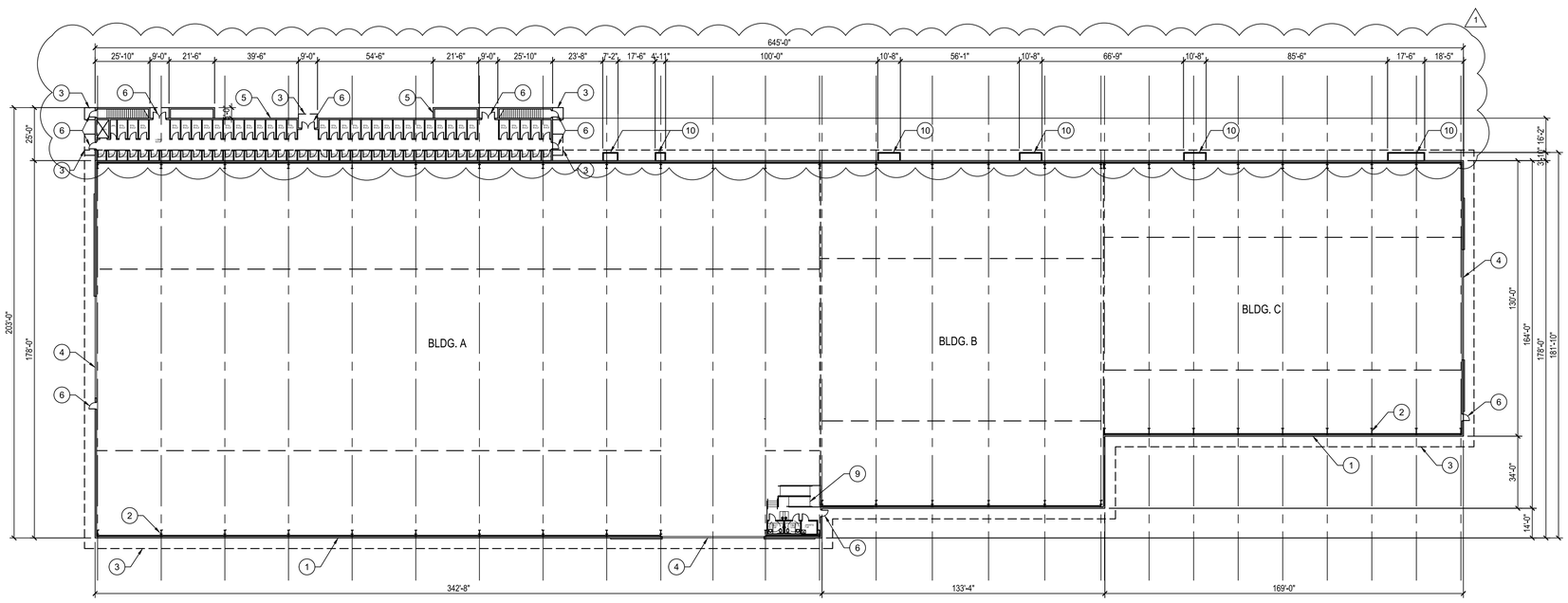
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1 OF 1

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key notes

1	CONCRETE TILT-WALL, TYP
2	STEEL COLUMN, TYP
3	EDGE OF ROOF ABOVE
4	METAL BARN DOOR
5	CMU WALL, TYP
6	HOLLOW METAL DOOR, TYP
7	CONCRETE SIDEWALK
8	OVERHEAD ROLL-UP DOOR
9	ACCESSIBILITY RAMP
10	CMU PLANTER

area analysis

GROSS BUILDING AREA	119,462 SF
BOAT BARN AREA	104,831 SF
STORAGE LOCKER AREA - GROUND FLOOR	4,877 SF
STORAGE LOCKER AREA - SECOND FLOOR	4,877 SF
STORAGE LOCKER AREA - THIRD FLOOR	4,877 SF

sheet notes

1. THE DRAWING SET IS FOR DESIGN INTENT AND ALL CONDITIONS MUST BE FIELD VERIFIED.
2. CLEAR DIMENSIONS DICTATE OVER ALL OTHER DIMENSIONS.

legend

- COLUMN GRID REFERENCE NUMBER
- COLUMN GRID LINES
- NEW CONCRETE BLOCK WALL
- NEW PARTITION WALL
- WALL TYPE REFERENCE
- EXISTING WALL TO REMAIN
- AREA NOT IN CONTRACT
- ROOM NAME
- ROOM NUMBER
- ROOM AREA
- DOOR REFERENCE NUMBER (REFER TO DOOR SCHEDULE)
- NEW DOOR & FRAME
- ELEVATION ON SHEET
- SHEET NUMBER
- WINDOW TAG
- MILLWORK
- MILLWORK ABOVE

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

phone 561.249.4001
AA26002397

Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS

1	ADDENDUM NO. 1	02/28/2022
2		
3		
4		
5		
6		
7		
8		
9		

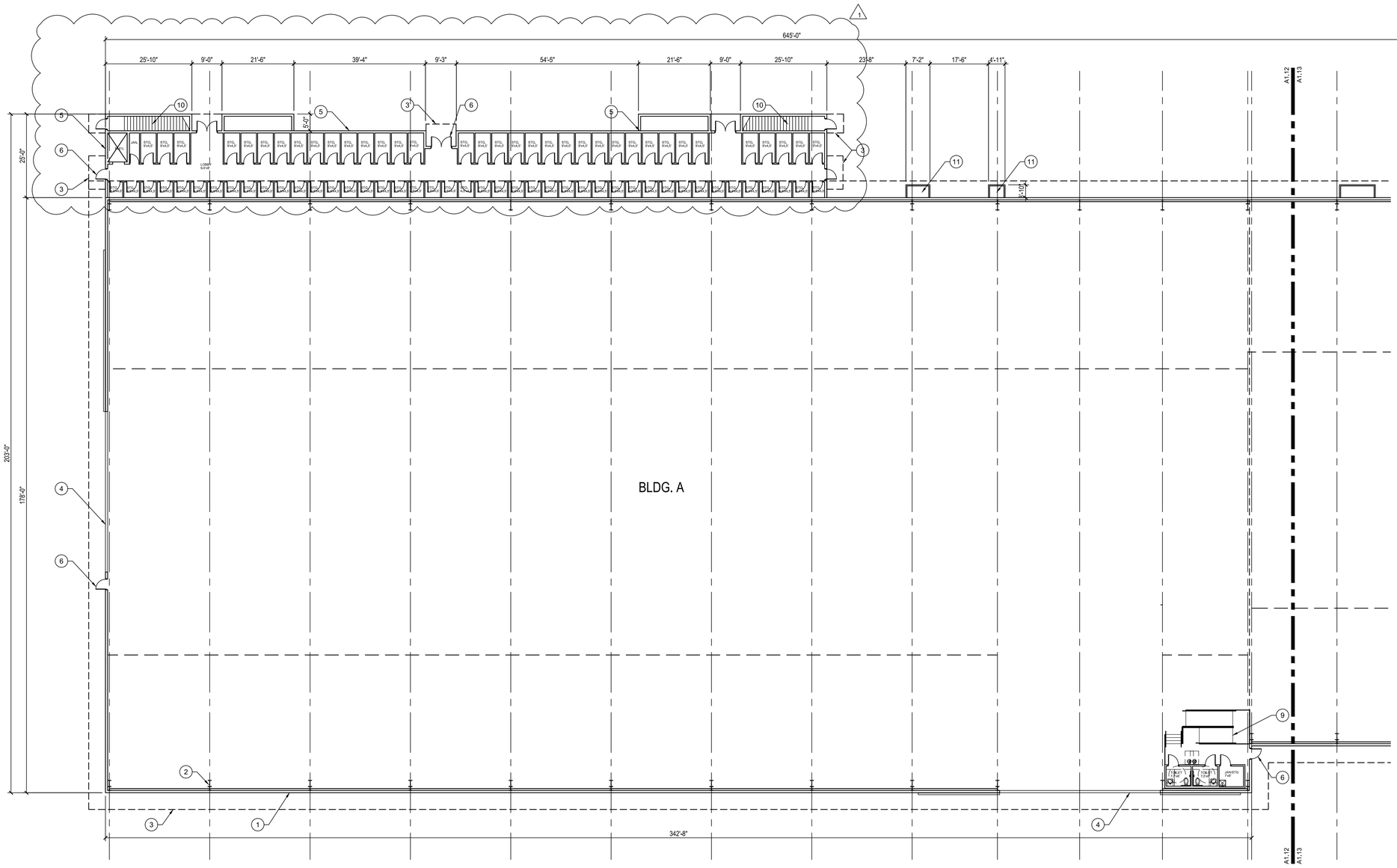
SUBMITTAL DATE 09/13/2021

SITE PLAN APPROVAL

BOAT BARN

OVERALL FLOOR PLAN

A1.11



1 FIRST FLOOR PLAN - BOAT BARN
1/16" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP	10	METAL STAIRS
2	STEEL COLUMN, TYP	11	CMU PLANTER
3	EDGE OF ROOF ABOVE		
4	METAL BARN DOOR		
5	CMU WALL, TYP		
6	HOLLOW METAL DOOR, TYP		
7	CONCRETE SIDEWALK		
8	OVERHEAD ROLL-UP DOOR		
9	ACCESSIBILITY RAMP		

area analysis

GROSS BUILDING AREA	119,462 SF
BOAT BARN AREA	104,831 SF
STORAGE LOCKER AREA - GROUND FLOOR	4,877 SF
STORAGE LOCKER AREA - SECOND FLOOR	4,877 SF
STORAGE LOCKER AREA - THIRD FLOOR	4,877 SF

sheet notes

1. THE DRAWING SET IS FOR DESIGN INTENT AND ALL CONDITIONS MUST BE FIELD VERIFIED.
2. CLEAR DIMENSIONS DICTATE OVER ALL OTHER DIMENSIONS.

legend

- COLUMN GRID REFERENCE NUMBER
- COLUMN GRID LINES
- NEW CONCRETE BLOCK WALL
- NEW PARTITION WALL
- WALL TYPE REFERENCE
- EXISTING WALL TO REMAIN
- AREA NOT IN CONTRACT
- ROOM NAME
- ROOM NUMBER
- ROOM AREA
- DOOR REFERENCE NUMBER (REFER TO DOOR SCHEDULE)
- NEW DOOR & FRAME
- ELEVATION ON SHEET
- SHEET NUMBER
- WINDOW TAG
- MILLWORK
- MILLWORK ABOVE

birse/thomas

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phone 561.249.4001
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Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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PROJECT NUMBER 21-330

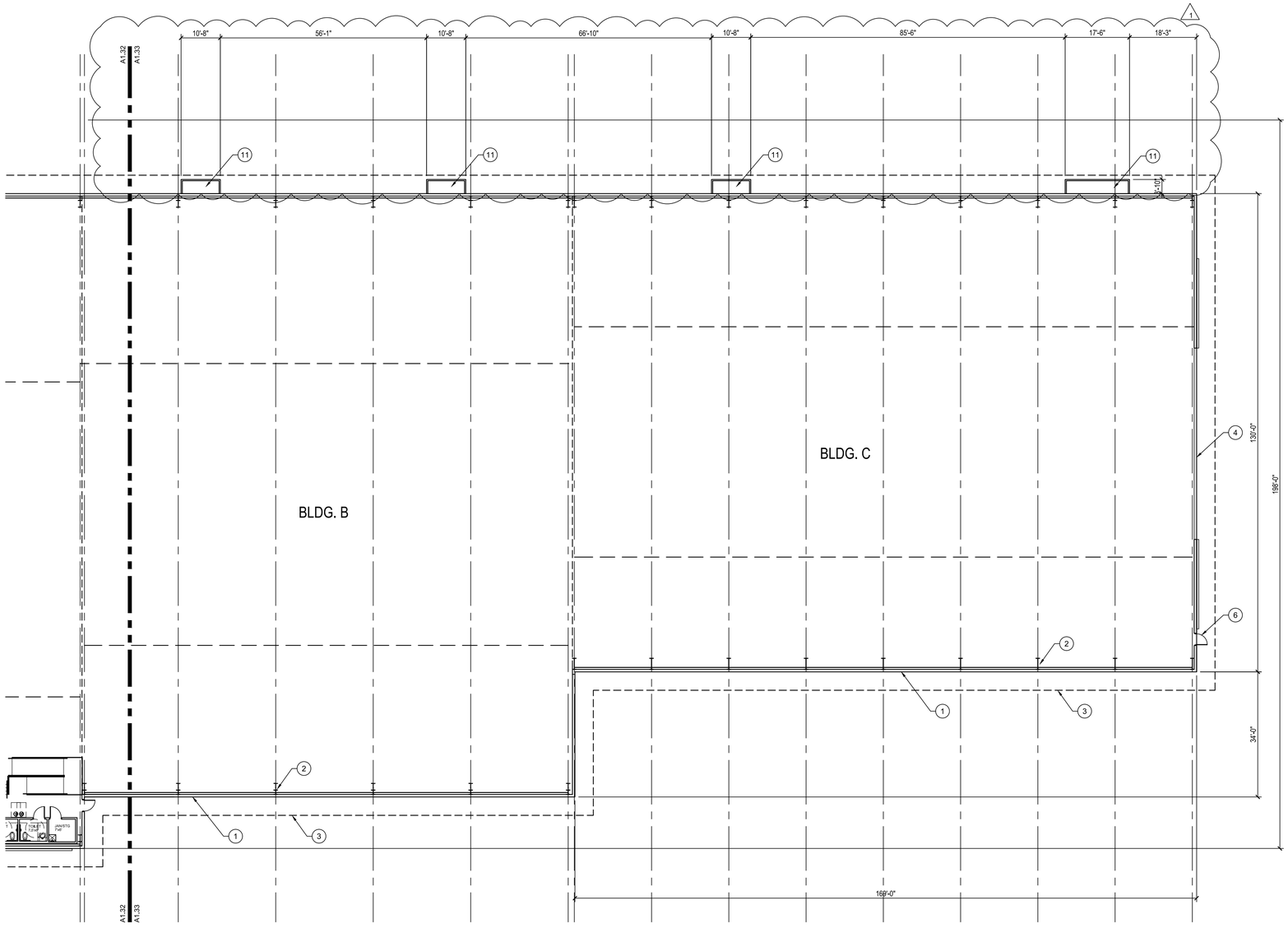
REVISIONS

1	ADDENDUM NO. 1	02/28/2022
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BOAT BARN
FIRST FLOOR CONSTRUCTION PLAN

A1.12



1 FIRST FLOOR PLAN - BOAT BARN
1/16" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	STEEL COLUMN, TYP
3	EDGE OF ROOF ABOVE
4	METAL BARN DOOR
5	CMU WALL, TYP
6	HOLLOW METAL DOOR, TYP
7	CONCRETE SIDEWALK
8	OVERHEAD ROLL-UP DOOR
9	ACCESSIBILITY RAMP
10	METAL STAIRS
11	CUM PLANTER

area analysis

GROSS BUILDING AREA	119,462 SF
BOAT BARN AREA	104,831 SF
STORAGE LOCKER AREA - GROUND FLOOR	4,877 SF
STORAGE LOCKER AREA - SECOND FLOOR	4,877 SF
STORAGE LOCKER AREA - THIRD FLOOR	4,877 SF

sheet notes

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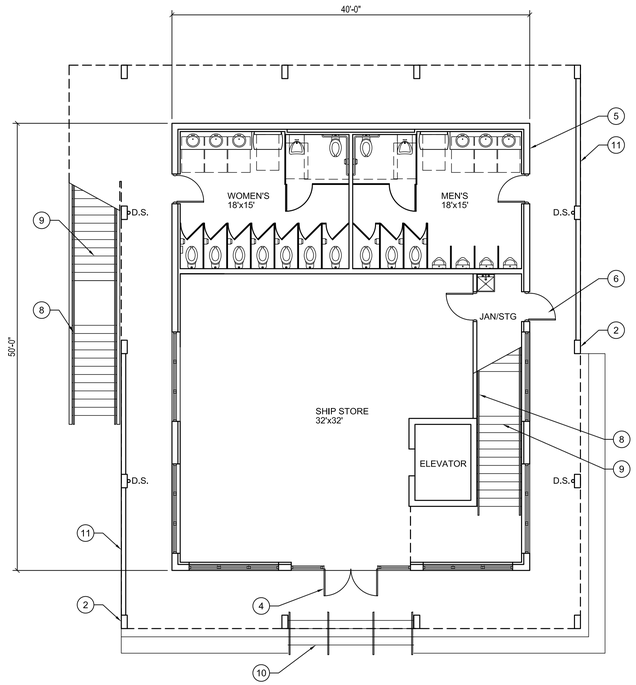
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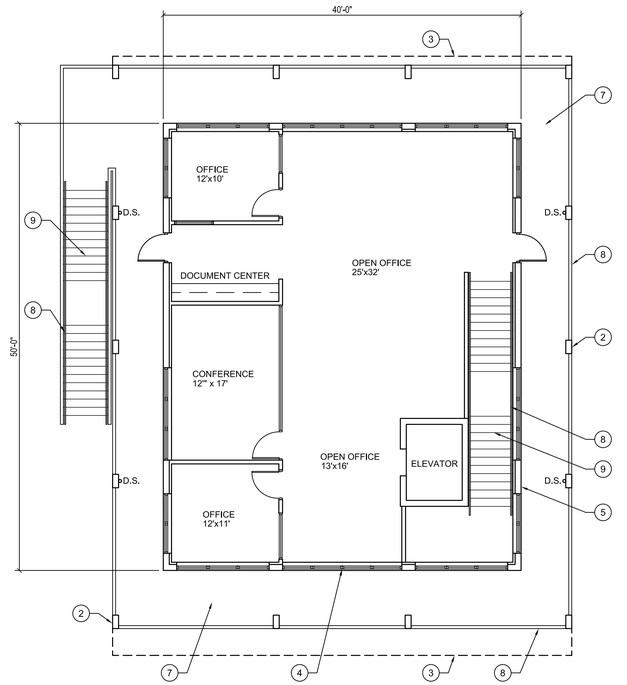
SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BOAT BARN
FIRST FLOOR CONSTRUCTION PLAN

A1.13



1 FIRST FLOOR PLAN - SHIP STORE/DOCKMASTER
1/8" = 1'-0"



2 MEZZANINE FLOOR PLAN - SHIP STORE/DOCKMASTER
1/8" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP	10	CONCRETE STAIRS
2	CONCRETE COLUMN, TYP	11	RETAINING WALL
3	EDGE OF ROOF ABOVE		
4	ALUMINUM STORE FRONT , TYP		
5	CMU WALL, TYP		
6	HOLLOW METAL DOOR, TYP		
7	EXTERIOR CIRCULATION		
8	METAL GUARD RAIL		
9	METAL STAIRS		

area analysis

GROSS BUILDING AREA	4,000 SF
FIRST FLOOR AREA	2,000 SF
SECOND FLOOR AREA	2,000 SF

sheet notes

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2. CLEAR DIMENSIONS DICTATE OVER ALL OTHER DIMENSIONS.

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- E — WALL TYPE REFERENCE
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- OFFICE — ROOM NAME
- 1A25 — ROOM NUMBER
- XXXX — ROOM AREA
- XX — DOOR REFERENCE NUMBER (REFER TO DOOR SCHEDULE)
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- 1 — WINDOW TAG
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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

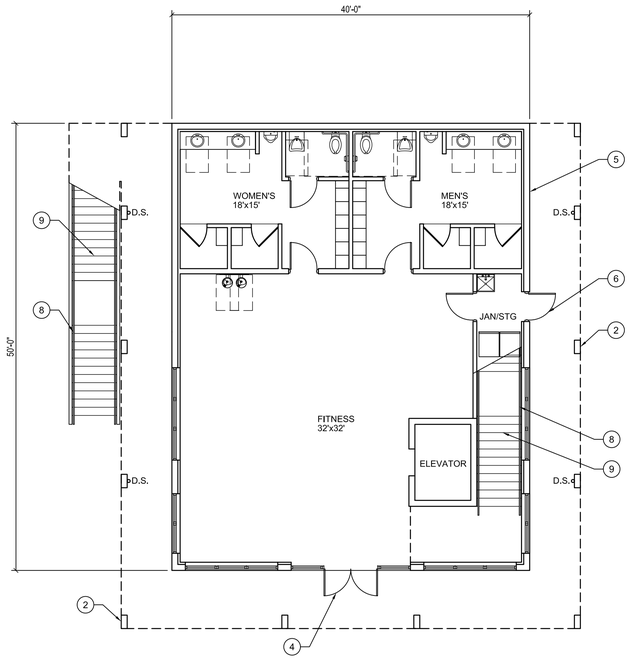
REVISIONS
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

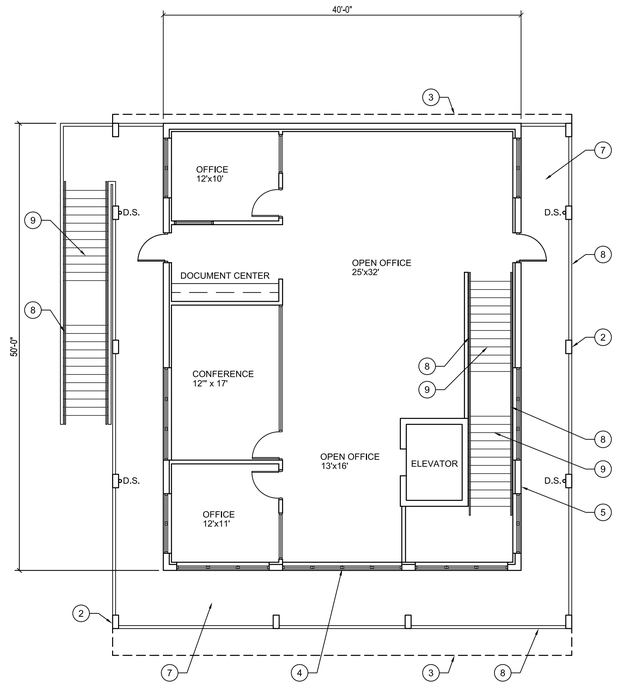
SHIP STORE/DOCKMASTER

FIRST FLOOR CONSTRUCTION PLAN

A1.14



1 FIRST FLOOR PLAN - YACHT SALES/FITNESS
1/8" = 1'-0"



2 MEZZANINE FLOOR PLAN - YACHT SALES/FITNESS
1/8" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	CONCRETE COLUMN, TYP
3	EDGE OF ROOF ABOVE
4	ALUMINUM STORE FRONT , TYP
5	CMU WALL, TYP
6	HOLLOW METAL DOOR, TYP
7	EXTERIOR CIRCULATION
8	METAL GUARD RAIL
9	METAL STAIRS

area analysis

GROSS BUILDING AREA	4,000 SF
FIRST FLOOR AREA	2,000 SF
SECOND FLOOR AREA	2,000 SF

sheet notes

1. THE DRAWING SET IS FOR DESIGN INTENT AND ALL CONDITIONS MUST BE FIELD VERIFIED.
2. CLEAR DIMENSIONS DICTATE OVER ALL OTHER DIMENSIONS.

legend

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- COLUMN GRID LINES
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- NEW PARTITION WALL
- E — WALL TYPE REFERENCE
- EXISTING WALL TO REMAIN
- AREA NOT IN CONTRACT
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- NEW DOOR & FRAME
- 1 / A1.XX — ELEVATION ON SHEET / SHEET NUMBER
- 1 — WINDOW TAG
- MILLWORK
- MILLWORK ABOVE

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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

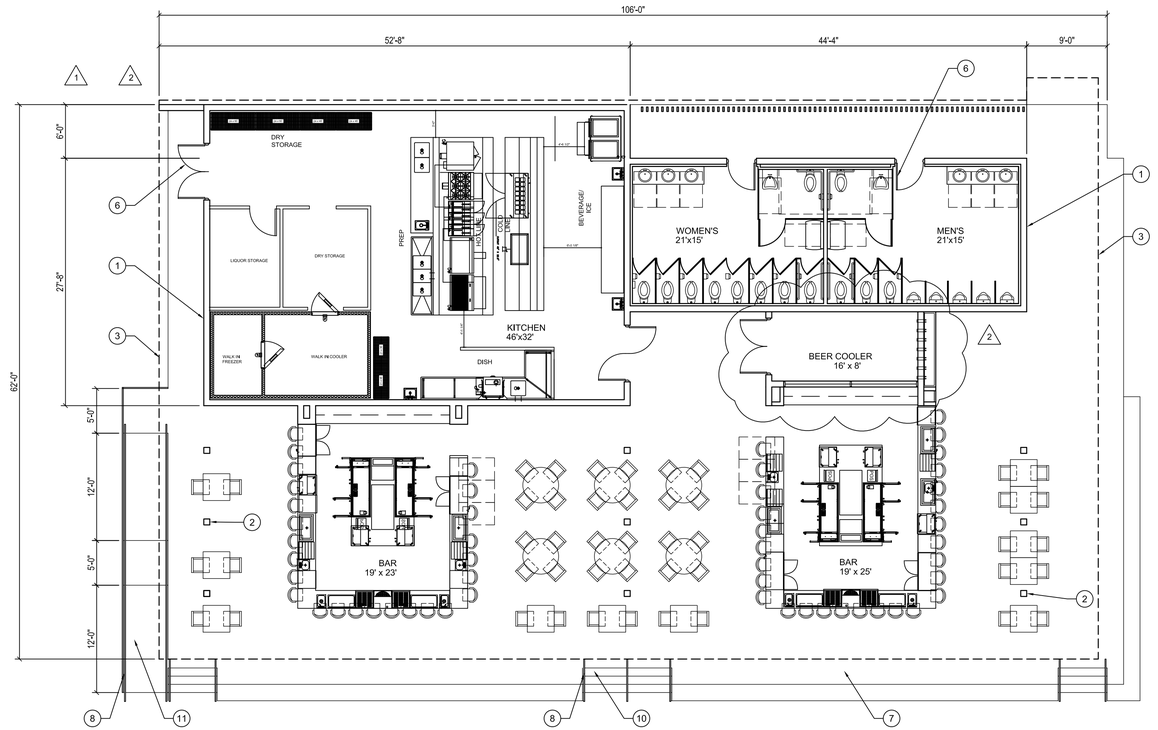
PROJECT NUMBER 21-330

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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

YACHT SALES/FITNESS
FIRST FLOOR CONSTRUCTION PLAN

A1.15



1 FIRST FLOOR PLAN - BAR/KITCHEN/BOH
1/8" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP	10	CONCRETE STAIRS, TYP.
2	CONCRETE COLUMN, TYP	11	CONCRETE ACCESSIBILITY RAMP
3	EDGE OF ROOF ABOVE		
4	ALUMINUM STORE FRONT , TYP		
5	CMU WALL, TYP		
6	HOLLOW METAL DOOR, TYP		
7	CONCRETE SIDEWALK		
8	METAL GUARD RAIL, TYP.		
9	METAL STAIRS, TYP.		

area analysis

GROSS BUILDING AREA	2,514 SF
COVERED DINING AREA	2,923 SF
GROSS CIRCULATION AREA	570 SF

sheet notes

1. THE DRAWING SET IS FOR DESIGN INTENT AND ALL CONDITIONS MUST BE FIELD VERIFIED.
2. CLEAR DIMENSIONS DICTATE OVER ALL OTHER DIMENSIONS.

legend

- 1 — COLUMN GRID REFERENCE NUMBER
- COLUMN GRID LINES
- NEW CONCRETE BLOCK WALL
- NEW PARTITION WALL
- E — WALL TYPE REFERENCE
- EXISTING WALL TO REMAIN
- AREA NOT IN CONTRACT
- OFFICE — ROOM NAME
- 1A25 — ROOM NUMBER
- XXXX — ROOM AREA
- XX — DOOR REFERENCE NUMBER (REFER TO DOOR SCHEDULE)
- NEW DOOR & FRAME
- 1 / A1.XX — ELEVATION ON SHEET / SHEET NUMBER
- 1 — WINDOW TAG
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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
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Atlantic Point Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

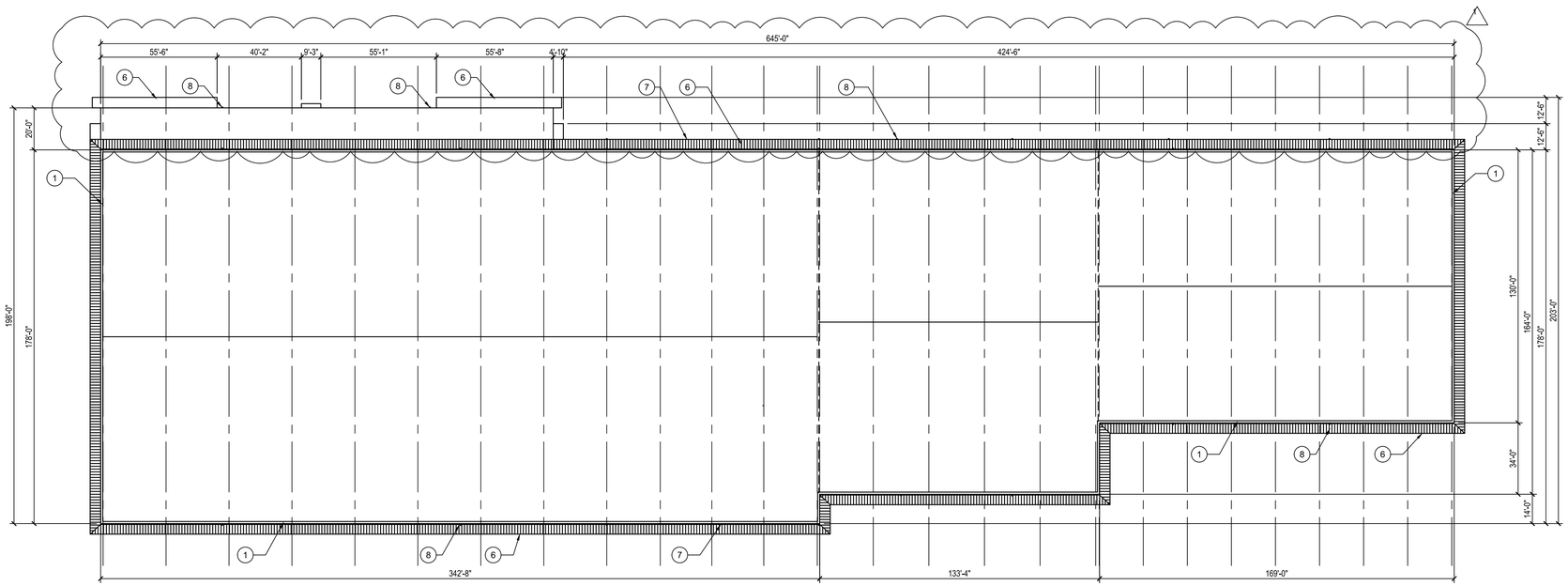
REVISIONS

1	ADDENDUM NO.1	10/22/2021
2	ADDENDUM NO.2	11/19/2021
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BAR/KITCHEN/BOH
FIRST FLOOR CONSTRUCTION PLAN

A1.16



1 OVERALL FLOOR PLAN - BOAT BARN
1/32" = 1'-0"

key notes

1. CONCRETE TILT-WALL, TYP
2. CMU WALL, TYP
3. EDGE OF ROOF OVERHANG TYP
4. VENTILATOR, TYP
5. SINGLE-PLY TPO ROOFING MEMBRANE, TYP
6. STANDING SEAM METAL ROOF, TYP
7. METAL GUTTER, TYP
8. METAL DOWNSPOUT PAINTED TO MATCH ADJACENT WALL

roof drainage calculations

FBC 1106.3 VERTICAL LEADER SIZING.
VERTICAL LEADERS SHALL BE SIZED BASED ON THE FLOW RATE FROM HORIZONTAL GUTTERS OR THE MAXIMUM FLOW RATE THROUGH ROOF DRAINS. THE FLOW RATE THROUGH VERTICAL LEADERS SHALL NOT EXCEED THAT SPECIFIED IN TABLE 1106.3

4-1/2"x6" HORIZONTAL GUTTER WITH 1/4" PER FOOT = 348 GPM ALLOWABLE = 325 GPM PROVIDED

FBC 1106.6SIZE OF ROOF GUTTERS.
HORIZONTAL GUTTERS SHALL BE SIZED BASED ON THE FLOW RATE FROM THE ROOF SURFACE. THE FLOW RATE IN HORIZONTAL GUTTERS SHALL NOT EXCEED THAT SPECIFIED IN TABLE 1106.

6" DIAMETER VERTICAL LEADER = 563 GPM ALLOWABLE = 552 GPM PROVIDED

sheet notes

1. ROOFING SYSTEM IS NEW EXISTING ANY NEW PENETRATIONS SHALL BE REPAIRED AS REQUIRED.
2. COORDINATE ALL NEW ROOFTOP MECHANICAL UNITS, EXHAUST FANS AND VENTS WITH THE MECHANICAL DRAWINGS FOR SPECIFICATIONS AND INSTALLATION.
3. ALL NEW ROOFTOP UNITS ARE TO BE LOCATED OVER EXISTING OPENINGS.
4. EXISTING OPENINGS TO BE MODIFIED AS REQUIRED TO ACCEPT NEW ROOFTOP UNITS. SEE STRUCTURAL SHEETS.
5. IF CURBS AND ROOF STANDS ARE TO BE NEW. CONTRACTOR TO PROVIDE SHOP DRAWINGS AND NOA'S FOR ALL CURBS AND ROOF STANDS FOR APPROVAL.
6. PROVIDE NEW SCREEN WALL AS REQUIRED TO SCREEN NEW ROOFTOP UNITS. SEE STRUCTURAL SHEETS. CONTRACTOR TO PROVIDE SHOP DRAWINGS AND NOA'S FOR APPROVAL.
7. THE DRAWING SET IS FOR DESIGN INTENT AND ALL CONDITIONS MUST BE FIELD VERIFIED.
8. CONTRACTOR SHALL REVIEW FINAL CONDITIONS REQUIRED AND PROVIDE ALL DEMOLITION WORK, PATCHING AND REPAIRING NECESSARY.
9. LOCATE EXISTING INFRASTRUCTURE COMPONENTS IN THE AREA OF WORK. IF COMPONENTS ARE TO REMAIN IN PLACE, PROVIDE ADEQUATE MEANS OF PROTECTION DURING DEMOLITION. IF ANY INFRASTRUCTURE COMPONENTS SHOULD BECOME DAMAGED DURING DEMOLITION, CONSULT THE ARCHITECT IMMEDIATELY FOR DIRECTION AS TO PROCEDURE. THE CONTRACTOR SHALL BEAR ALL EXPENSES OF REPAIR OR REPLACEMENT OF INFRASTRUCTURE COMPONENTS OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF WORK.
10. CONTRACTOR TO VERIFY ALL REQUIRED CLEARANCES AROUND ROOFTOP MECHANICAL UNITS PRIOR TO FABRICATING SCREEN WALLS. SCREEN WALLS MUST BE AS TALL AS THE EQUIPMENT

legend

- CRICKETS
- STANDING SEAM METAL ROOF
- MAXIMUM ROOF DRAINAGE AREA

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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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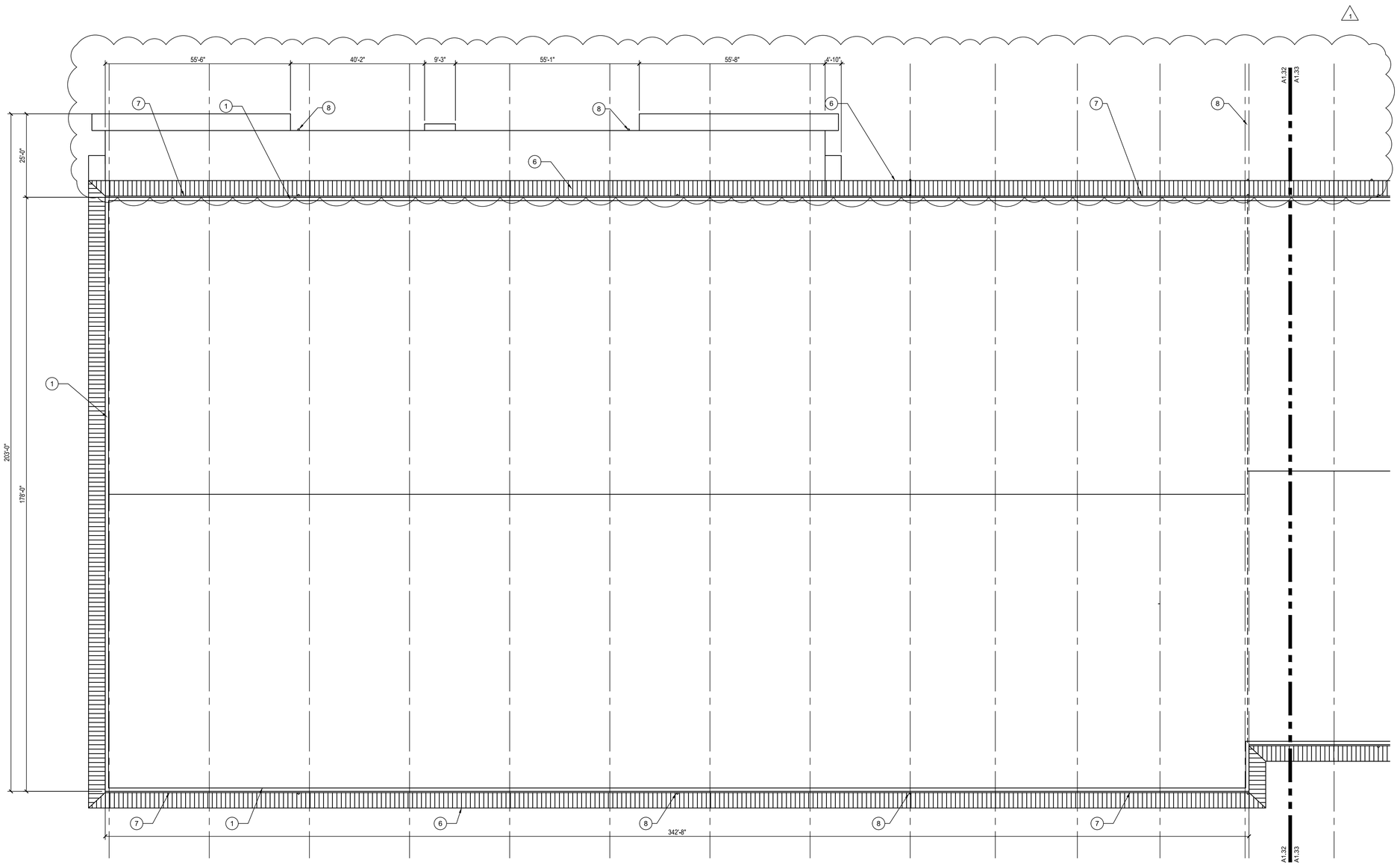
PROJECT NUMBER 21-330

REVISIONS
1 ADDENDUM NO. 1 02/28/2022
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BOAT BARN
OVERALL ROOF PLAN

A1.31



1 FIRST FLOOR PLAN - BOAT BARN
1/16" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	CMU WALL, TYP
3	EDGE OF ROOF OVERHANG TYP
4	VENTILATOR, TYP
5	SINGLE-PLY TPO ROOFING MEMBRANE, TYP
6	STANDING SEAM METAL ROOF, TYP
7	METAL GUTTER, TYP
8	METAL DOWNSPOUT PAINTED TO MATCH ADJACENT WALL
9	–

roof drainage calculations

FBC 1106.3 VERTICAL LEADER SIZING.
VERTICAL LEADERS SHALL BE SIZED BASED ON THE FLOW RATE FROM HORIZONTAL GUTTERS OR THE MAXIMUM FLOW RATE THROUGH ROOF DRAINS, THE FLOW RATE THROUGH VERTICAL LEADERS SHALL NOT EXCEED THAT SPECIFIED IN TABLE 1106.3

4-1/2"x6" HORIZONTAL GUTTER WITH 1/4" PER FOOT = 348 GPM ALLOWABLE = 325 GPM PROVIDED

FBC 1106.6SIZE OF ROOF GUTTERS.
HORIZONTAL GUTTERS SHALL BE SIZED BASED ON THE FLOW RATE FROM THE ROOF SURFACE, THE FLOW RATE IN HORIZONTAL GUTTERS SHALL NOT EXCEED THAT SPECIFIED IN TABLE 1106.

6" DIAMETER VERTICAL LEADER = 563 GPM ALLOWABLE = 552 GPM PROVIDED

sheet notes

1. ROOFING SYSTEM IS NEW EXISTING ANY NEW PENETRATIONS SHALL BE REPAIRED AS REQUIRED.
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legend

- CRICKETS
- STANDING SEAM METAL ROOF
- MAXIMUM ROOF DRAINAGE AREA

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75 NW FLAGLER DRIVE
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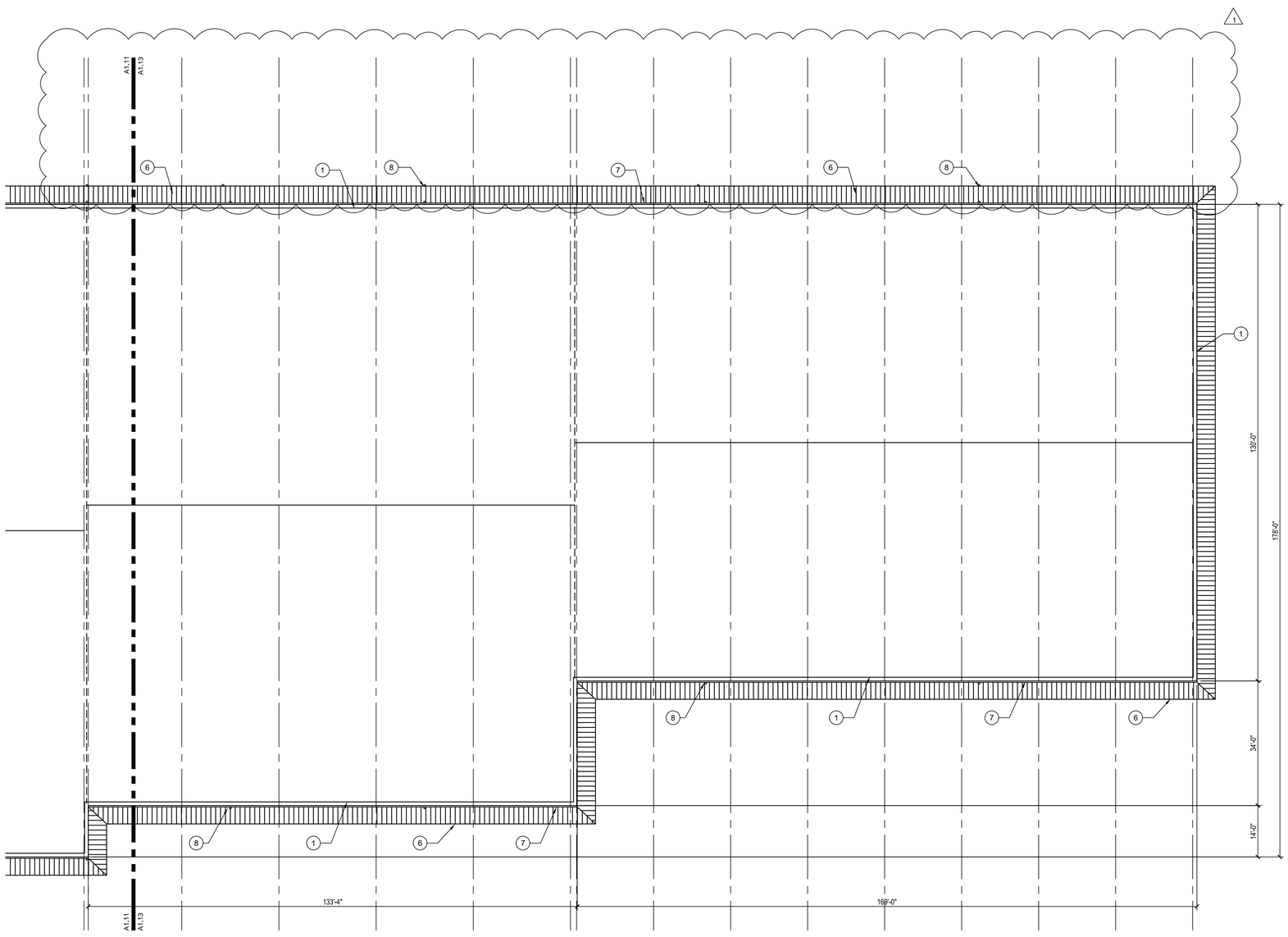
PROJECT NUMBER 21-330

REVISIONS
1 ADDENDUM NO. 1 02-28-22
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BOAT BARN
ROOF PLAN

A1.32



1 FIRST FLOOR PLAN - BOAT BARN
1/16" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	CMU WALL, TYP
3	EDGE OF ROOF OVERHANG TYP
4	VENTILATOR, TYP
5	SINGLE-PLY TPO ROOFING MEMBRANE, TYP
6	STANDING SEAM METAL ROOF, TYP
7	METAL GUTTER, TYP
8	METAL DOWNSPOUT PAINTED TO MATCH ADJACENT WALL
9	–

roof drainage calculations

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10. CONTRACTOR TO VERIFY ALL REQUIRED CLEARANCES AROUND ROOFTOP MECHANICAL UNITS PRIOR TO FABRICATING SCREEN WALLS. SCREEN WALLS MUST BE AS TALL AS THE EQUIPMENT

legend

- CRICKETS
- STANDING SEAM METAL ROOF
- MAXIMUM ROOF DRAINAGE AREA

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

phone 561.249.4001
AA26002397

Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point Yacht Club & Marina of Stuart

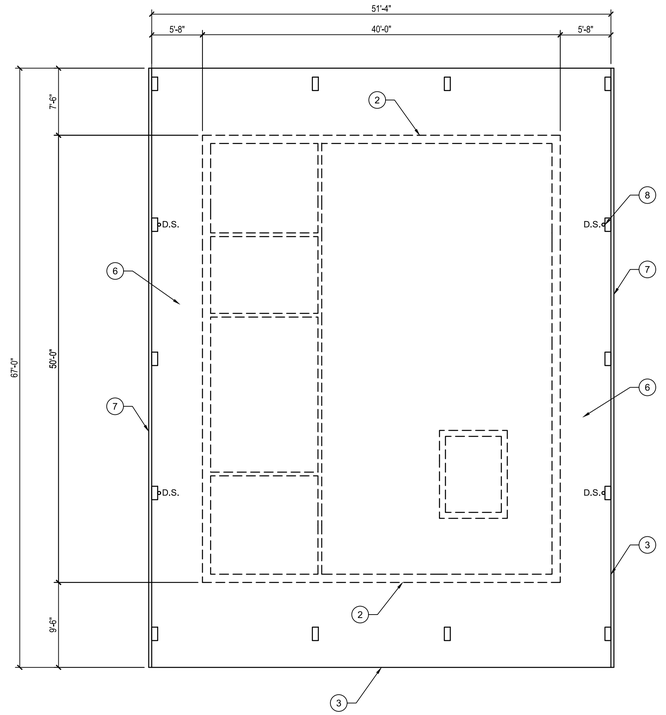
PROJECT NUMBER 21-330

REVISIONS
1 ADDENDUM NO. 1 02/28/2022
2
3
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BOAT BARN
ROOF PLAN

A1.33



1 SHIP STORE/DOCKMASTER - ROOF PLAN
1/8" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	CMU WALL, TYP
3	EDGE OF ROOF OVERHANG TYP
4	VENTILATOR, TYP
5	SINGLE-PLY TPO ROOFING MEMBRANE, TYP
6	STANDING SEAM METAL ROOF, TYP
7	METAL GUTTER, TYP
8	METAL DOWNSPOUT PAINTED TO MATCH ADJACENT WALL
9	--

roof drainage calculations

FBC 1106.3 VERTICAL LEADER SIZING.
VERTICAL LEADERS SHALL BE SIZED BASED ON THE FLOW RATE FROM HORIZONTAL GUTTERS OR THE MAXIMUM FLOW RATE THROUGH ROOF DRAINS. THE FLOW RATE THROUGH VERTICAL LEADERS SHALL NOT EXCEED THAT SPECIFIED IN TABLE 1106.3

4-1/2"x6" HORIZONTAL GUTTER WITH 1/4" PER FOOT = 348 GPM ALLOWABLE = 50 GPM PROVIDED

FBC 1106.6SIZE OF ROOF GUTTERS.
HORIZONTAL GUTTERS SHALL BE SIZED BASED ON THE FLOW RATE FROM THE ROOF SURFACE. THE FLOW RATE IN HORIZONTAL GUTTERS SHALL NOT EXCEED THAT SPECIFIED IN TABLE 1106.

6" DIAMETER VERTICAL LEADER = 563 GPM ALLOWABLE = 50 GPM PROVIDED

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legend

- CRICKETS
- STANDING SEAM METAL ROOF
- MAXIMUM ROOF DRAINAGE AREA

birse/thomas

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palm beach gardens, fl 33418

phone 561.249.4001
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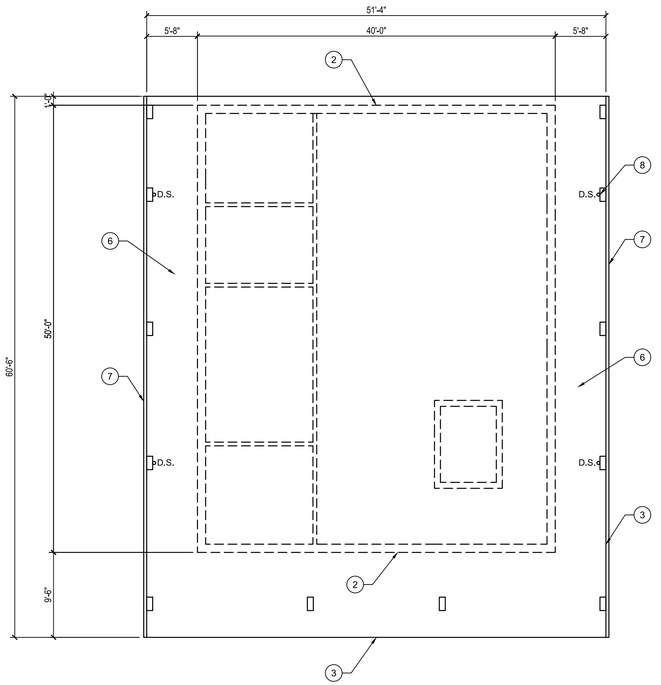
PROJECT NUMBER 21-330

REVISIONS
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SUBMITTAL DATE 08/30/2021
SITE PLAN REVIEW

SHIP STORE/DOCKMASTER
ROOF PLAN

A1.34



1 YACHT SALES/FITNESS - ROOF PLAN
1/8" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	CMU WALL, TYP
3	EDGE OF ROOF OVERHANG TYP
4	VENTILATOR, TYP
5	SINGLE-PLY TPO ROOFING MEMBRANE, TYP
6	STANDING SEAM METAL ROOF, TYP
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roof drainage calculations

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Yacht Club & Marina of Stuart

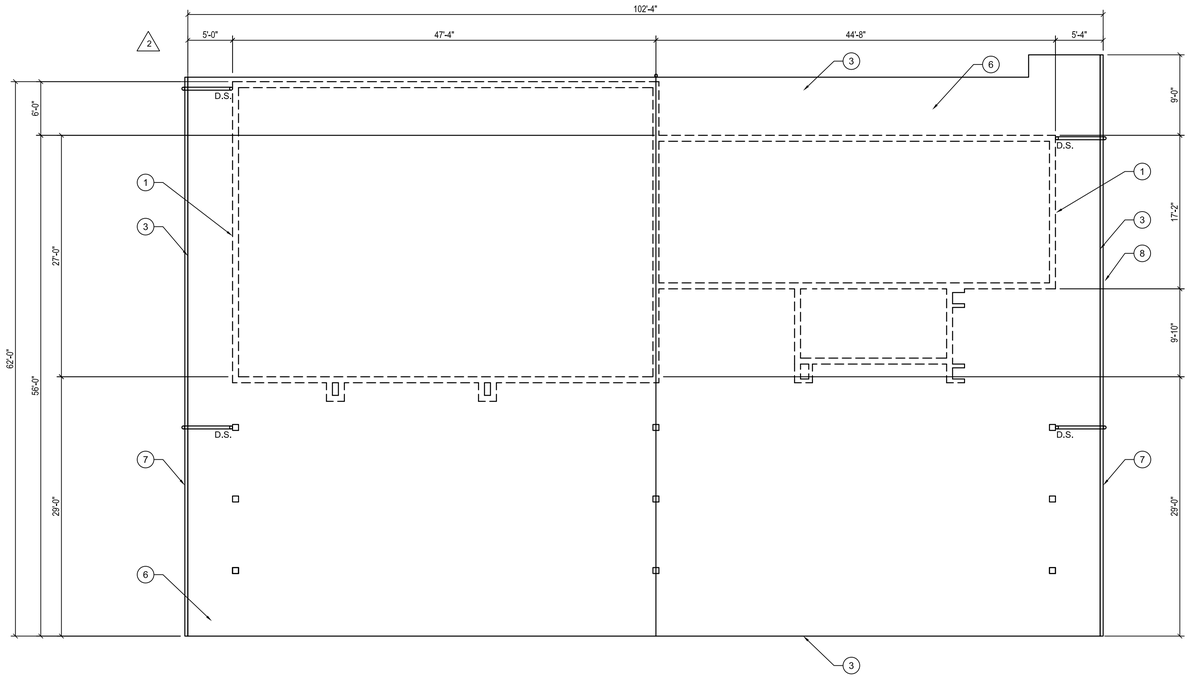
PROJECT NUMBER 21-330

REVISIONS
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SUBMITTAL DATE 08/30/2021
SITE PLAN REVIEW

YACHT SALES/FITNESS
ROOF PLAN

A1.35



1 BAR/KITCHEN/BOH - ROOF PLAN
1/8" = 1'-0"

key notes

1	CONCRETE TILT-WALL, TYP
2	CMU WALL, TYP
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roof drainage calculations

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legend

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birse/thomas

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AA26002397

Joseph Thomas, AIA
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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

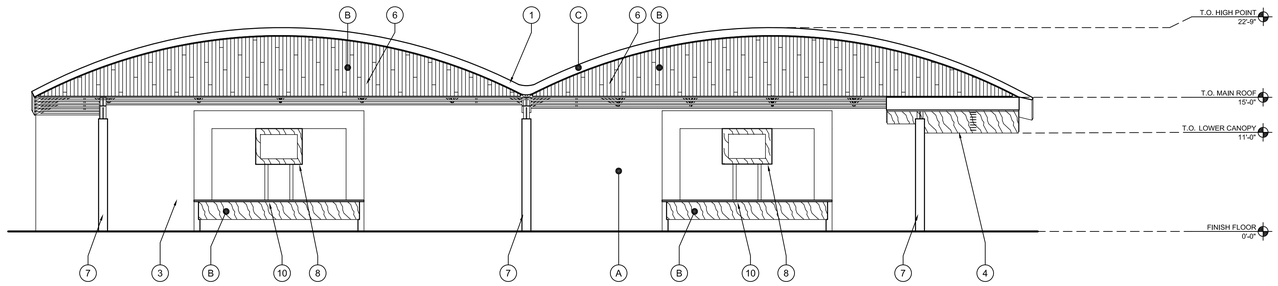
PROJECT NUMBER 21-330

REVISIONS
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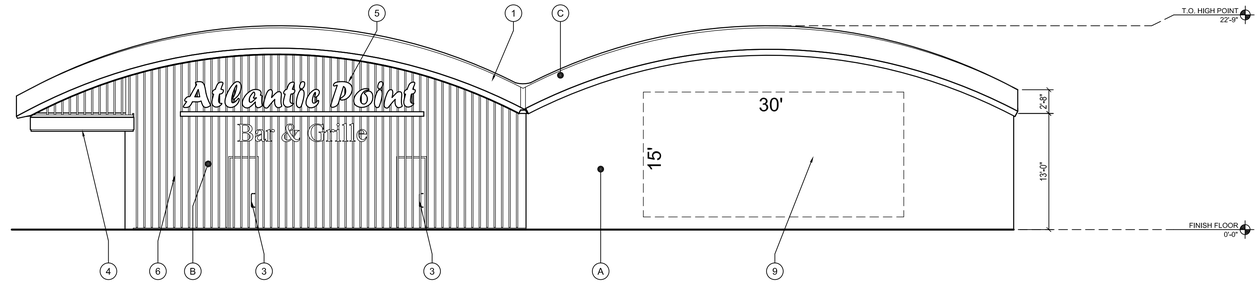
SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BAR/KITCHEN/BOH
ROOF PLAN

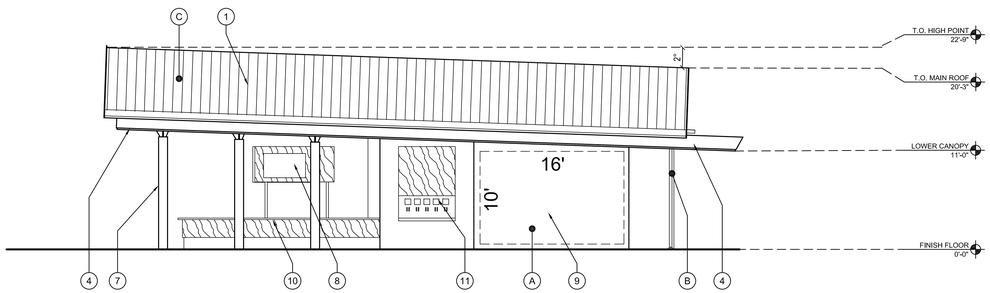
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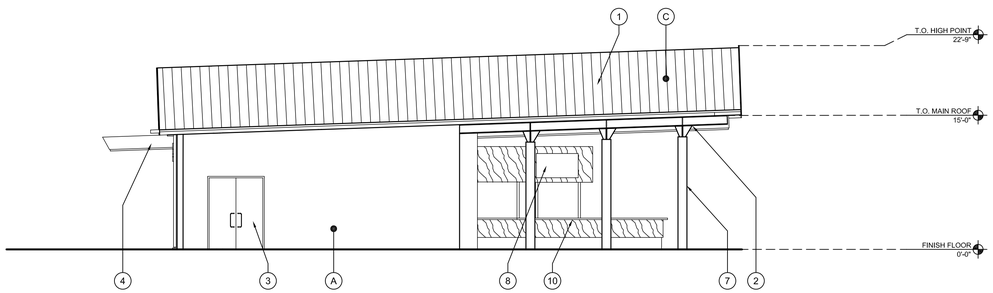
1 SOUTHEAST ELEVATION
1/8" = 1'-0"



2 NORTHWEST ELEVATION
1/8" = 1'-0"



4 NORTHEAST ELEVATION
1/8" = 1'-0"



3 SOUTHWEST ELEVATION
1/8" = 1'-0"

key notes

1	STANDING SEAM METAL ROOF	10	BAR / COUNTERTOP
2	PAINTED STEEL STRUCTURE	11	WALL TAP
3	PAINTED HOLLOW METAL DOOR & FRAME		
4	SOFFIT / CANOPY		
5	BUILDING SIGNAGE		
6	WOOD LOUVERS		
7	CONCRETE COLUMNS		
8	ENTERTAINMENT CENTER		
9	MURAL WALL ART		

color schedule

A	FIELD COLOR - BENJAMIN MOORE BRIGHT WHITE PAINTED STUCCO FINISH
B	ACCENT MATERIAL - WOOD LOUVERS
C	SLATE GRAY - KYNAR FINISH .PAC-CLAD. STANDING SEAM METAL ROOF

sheet notes

1. ALL STOREFRONT DOORS AND WINDOWS SHALL HAVE CLEAR ANODIZED FINISH.
2. HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED TO MATCH ADJACENT WALL COLOR.
3. ALL CMU WALLS SHALL HAVE PAINTED STUCCO FINISH.

legend

birse/thomas

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Yacht Club & Marina of Stuart

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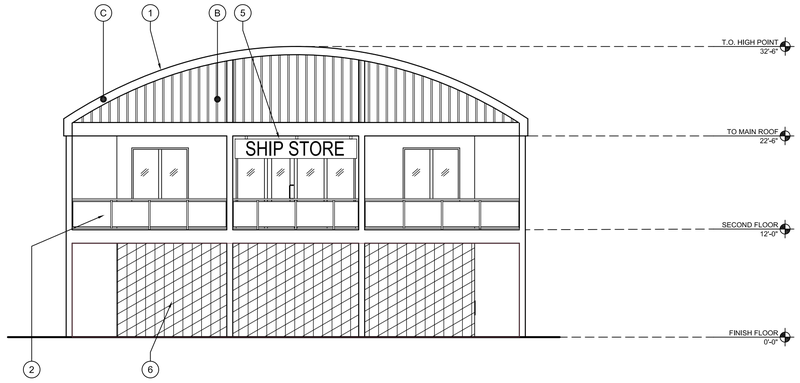
REVISIONS
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

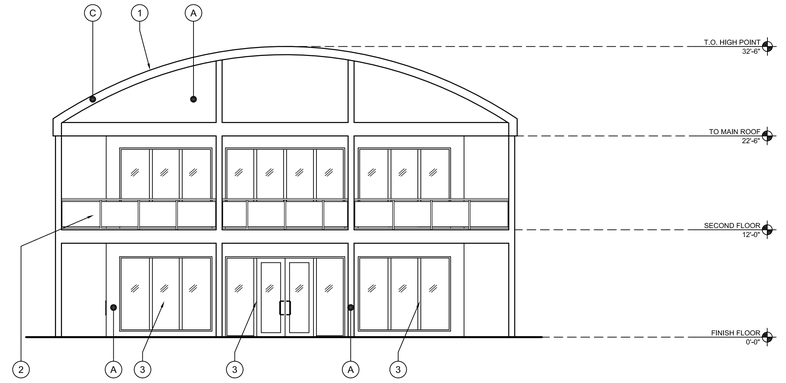
BAR/KITCHEN/BOH

EXTERIOR ELEVATIONS

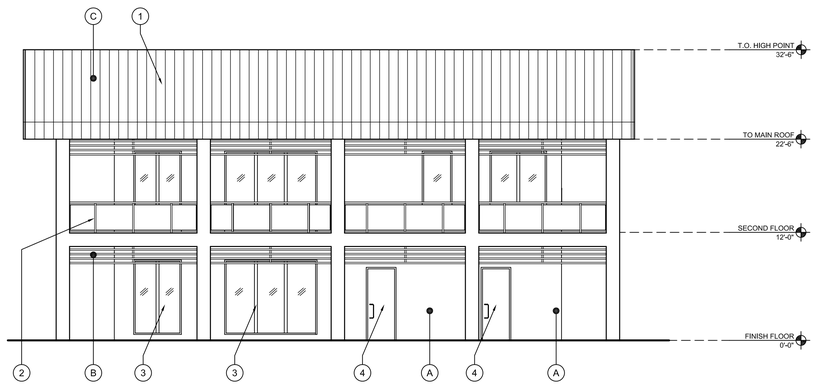
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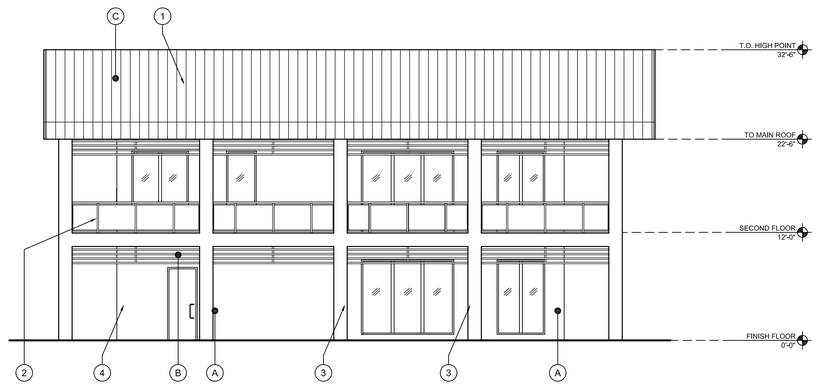
2 WEST ELEVATION
1/8" = 1'-0"



1 EAST ELEVATION
1/8" = 1'-0"



4 NORTH ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"

key notes

1	STANDING SEAM METAL ROOF
2	STAINLESS STEEL MESH GUARDRAIL
3	ALUMINUM STOREFRONT DOOR/WINDOW
4	PAINTED HOLLOW METAL DOOR & FRAME
5	BUILDING SIGNAGE
6	GREEN WALL

color schedule

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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS
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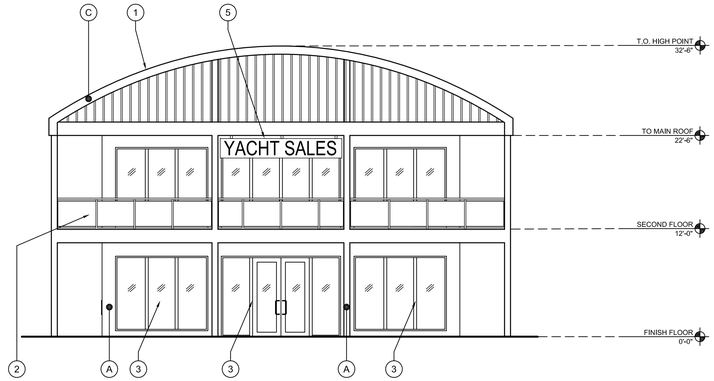
SUBMITTAL DATE 09/13/2021

SITE PLAN APPROVAL

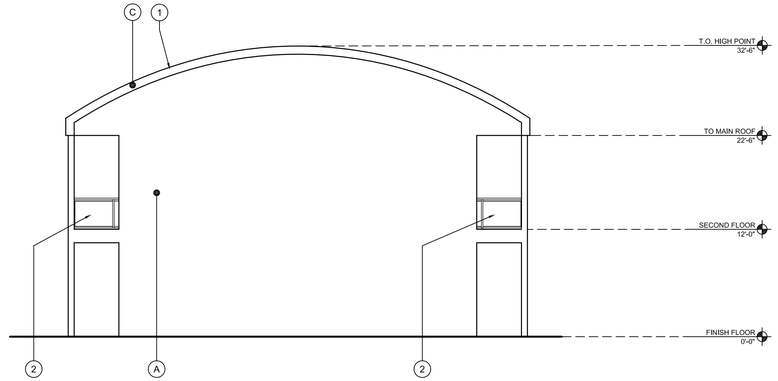
SHIP STORE/DOCKMASTER

EXTERIOR ELEVATIONS

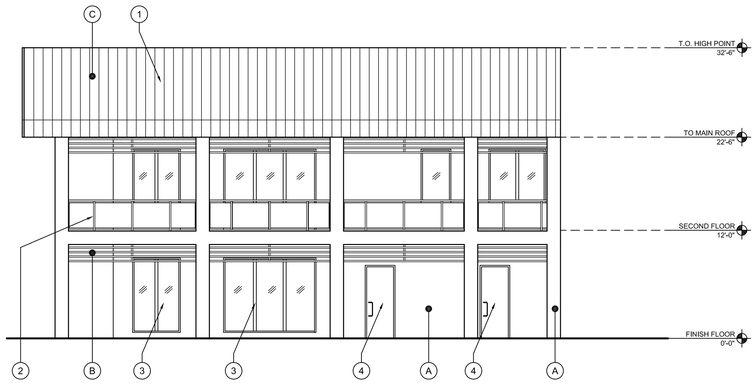
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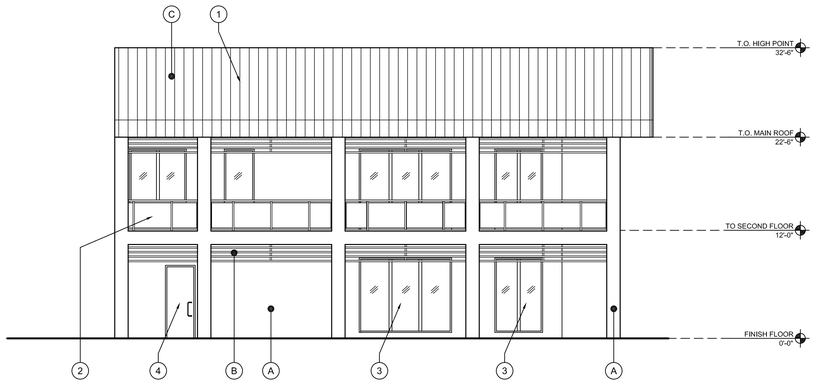
2 EAST ELEVATION
1/8" = 1'-0"



1 WEST ELEVATION (ABUTTED AGAINST BOAT BARN)
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key notes

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3	ALUMINUM STOREFRONT DOOR/WINDOW
4	PAINTED HOLLOW METAL DOOR & FRAME
5	BUILDING SIGNAGE
6	
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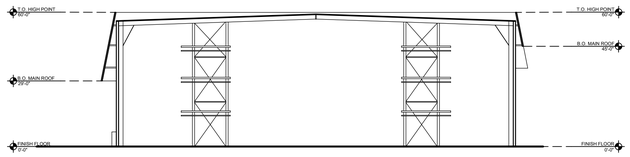
REVISIONS
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

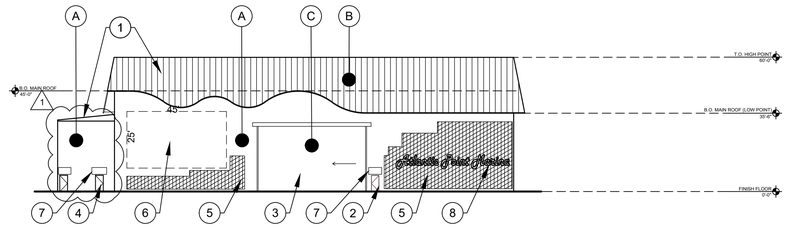
YACHT SALES/FITNESS
EXTERIOR ELEVATIONS

A2.03

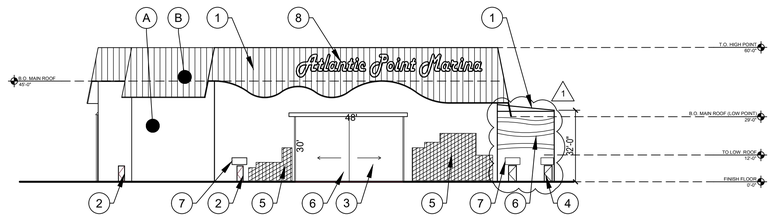
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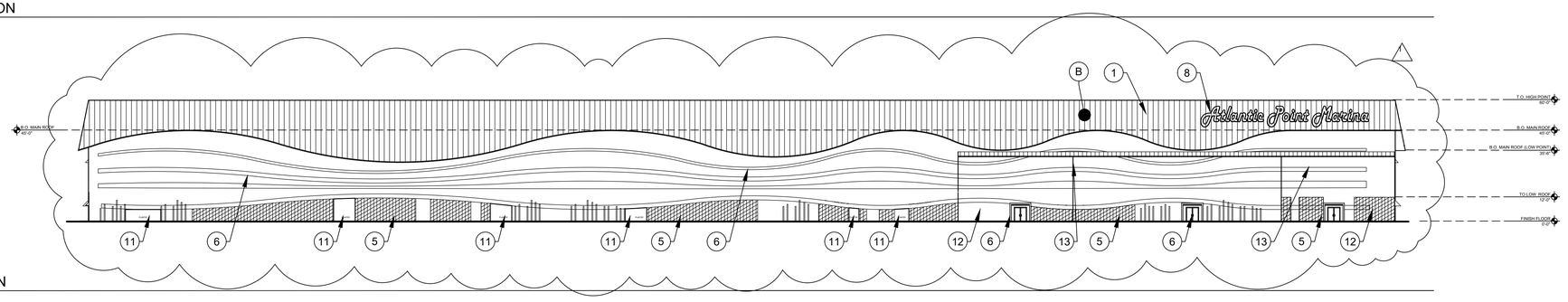
5 BUILDING SECTION, TYP. @ LARGEST BAY
1/32" = 1'-0"



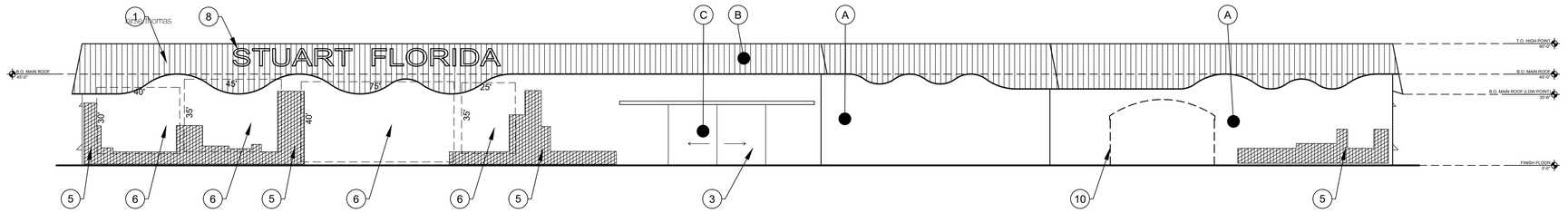
1 SOUTH ELEVATION
1/32" = 1'-0"



2 NORTH ELEVATION
1/32" = 1'-0"



3 WEST ELEVATION
1/32" = 1'-0"



4 EAST ELEVATION
1/32" = 1'-0"

key notes

1	STANDING SEAM ROOF
2	HOLLOW METAL DOOR AND FRAME
3	BOAT BARN METAL DOOR AND CANOPY
4	ALUMINUM STOREFRONT DOOR
5	GREEN WALL
6	WALL MURAL/PUBLIC ART
7	PROPOSED AWNING CANOPY
8	PROPOSED BUILDING SIGNAGE
9	NOT USED
10	YACHT SALES BLDG OUTLINE. SEE SITE PLAN
11	CONCRETE PLANTER

color schedule

A	WHITE - TEX COAT FINISH ON CONCRETE TILT WALL PANELS
B	SLATE GRAY - KYNAR FINISH .PAC-CLAD. STANDING SEAM METAL ROOF
C	CARDINAL RED - KYNAR FINISH .PAC-CLAD. STANDING SEAM METAL (AWNING CANOPIES & BOAT BARN DOORS (EAST & SOUTH) CLADDING)

sheet notes

1. PANEL JOINTS SHALL BE PAINTED TO MATCH ADJACENT WALL COLOR.
2. ALL STOREFRONT DOORS AND WINDOWS SHALL HAVE CLEAR ANODIZED FINISH.
3. HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED TO MATCH ADJACENT WALL COLOR.
4.

legend

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

phone 561.249.4001
AA26002397

Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS

1	ADDENDUM NO. 1	02/28/2022
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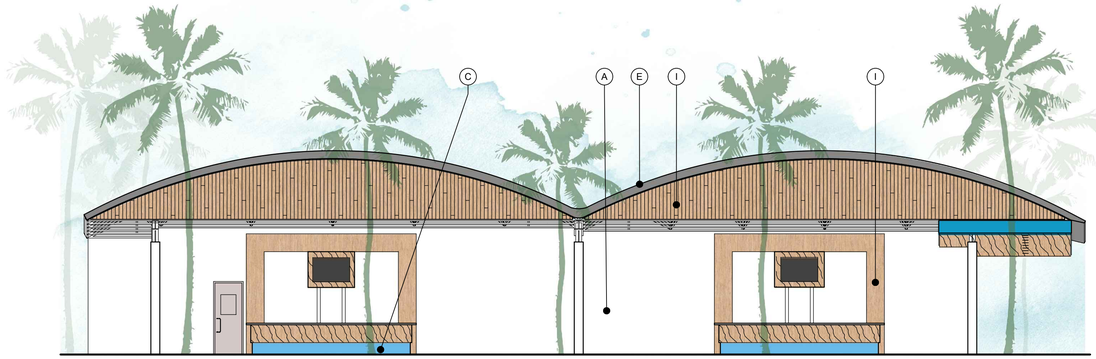
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SITE PLAN APPROVAL

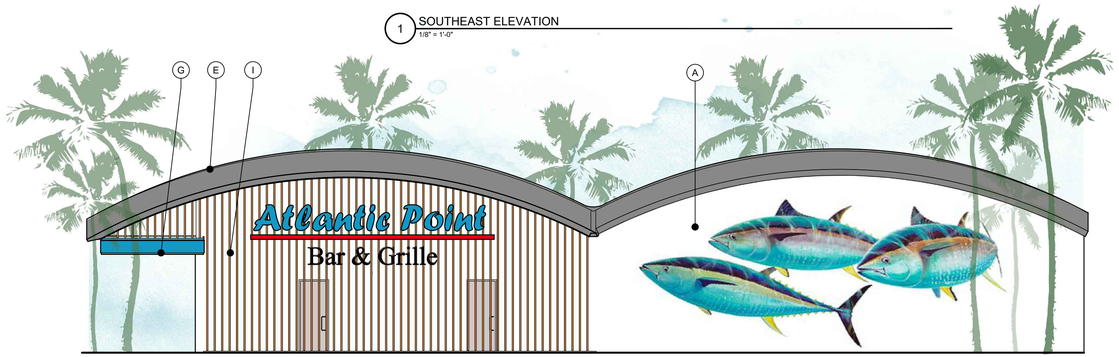
BOAT BARN

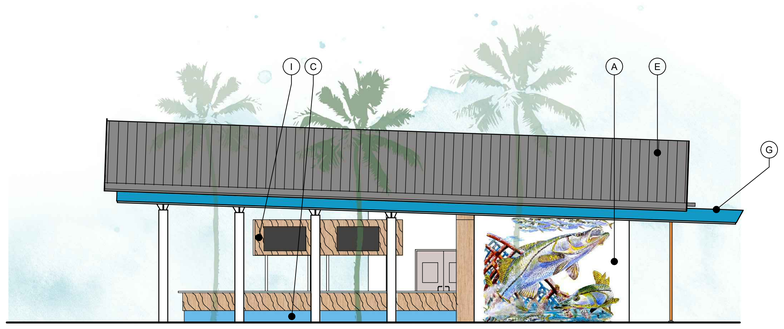
EXTERIOR ELEVATIONS

A2.04

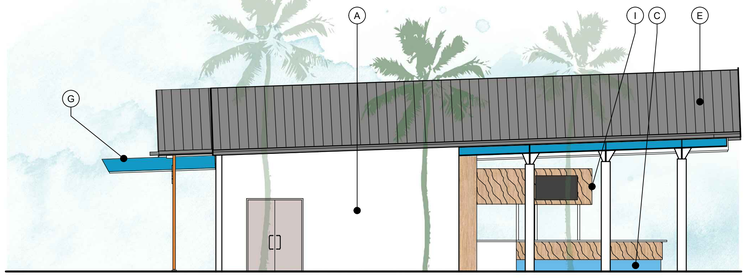


1 SOUTHEAST ELEVATION
1/8" = 1'-0"





2 NORTHWEST ELEVATION
1/8" = 1'-0"



4 NORTHEAST ELEVATION
1/8" = 1'-0"

3 SOUTHWEST ELEVATION
1/8" = 1'-0"

B

PRIMARY COLOR
BENJAMIN MOORE-
SUPER WHITE PM-1
(TEX COAT ON CONC.
PANELS)

B

ACCENT COLOR
BENJAMIN MOORE-
WATER DROPS 659

C

ACCENT COLOR
BENJAMIN MOORE-
CAYMAN BLUE 2060-50

D

ACCENT COLOR
BENJAMIN MOORE-
CLEAREST OCEAN BLUE 2064-40

E

SLATE GRAY -
(KYNAR FINISH)
PAC-CLAD:
(MAIN ROOF)
STANDING SEAM
METAL

F

CARDINAL RED -
(KYNAR FINISH)
PAC-CLAD: STANDING
SEAM METAL CLADDING
(AWNING CANOPIES &
BOAT BARN DOORS (EAST
& SOUTH) CLADDING)

G

BERKSHIRE BLUE-
(KYNAR FINISH)
PAC-CLAD:
(LOW ROOF BOAT
BARN)
STANDING SEAM
METAL ROOF

H



GUARD RAILS-
JACOB ROPE SYSTEMS
STAINLESS STEEL WIRE
MESH W/ FAUX WOOD
TOP-RAIL

I



FAUX WOOD LOUVERS-
WOODN VERSATILIS:
COLOR: CUBA 99
(OUTDOOR)

J



GREEN WALLS-
JACOB ROPE SYSTEMS
STAINLESS STEEL VERTICAL
WIRE SYSTEM

birse/thomas

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AA26002397

Joseph Thomas, AIA
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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS
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SUBMITTAL DATE 09/13/2021
DEMOLITION PERMIT

BAR/KITCHEN/BOH
COLOR ELEVATIONS

A2.05



2 WEST ELEVATION
1/8" = 1'-0"



1 EAST ELEVATION
1/8" = 1'-0"



4 NORTH ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"

A

PRIMARY COLOR
BENJAMIN MOORE-
SUPER WHITE PM-1
(TEX COAT ON CONC.
PANELS)

B

ACCENT COLOR
BENJAMIN MOORE-
WATER DROPS 659

C

ACCENT COLOR
BENJAMIN MOORE-
CAYMAN BLUE 2060-50

D

ACCENT COLOR
BENJAMIN MOORE-
CLEAREST OCEAN BLUE 2064-40

E

SLATE GRAY -
(KYNAR FINISH)
PAC-CLAD:
(MAIN ROOF)
STANDING SEAM
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PAC-CLAD: STANDING
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(AWNING CANOPIES &
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& SOUTH) CLADDING)

G

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(KYNAR FINISH)
PAC-CLAD:
(LOW ROOF BOAT
BARN)
STANDING SEAM
METAL ROOF

H



GUARD RAILS-
JACOB ROPE SYSTEMS
STAINLESS STEEL WIRE
MESH W/ FAUX WOOD
TOP-RAIL

I



FAUX WOOD LOUVERS-
WOODN VERSATILIS:
COLOR: CUBA 99
(OUTDOOR)

J



GREEN WALLS-
JACOB ROPE SYSTEMS
STAINLESS STEEL VERTICAL
WIRE SYSTEM

K



EXPOSED CONCRETE

birse/thomas

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palm beach gardens, fl 33418

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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

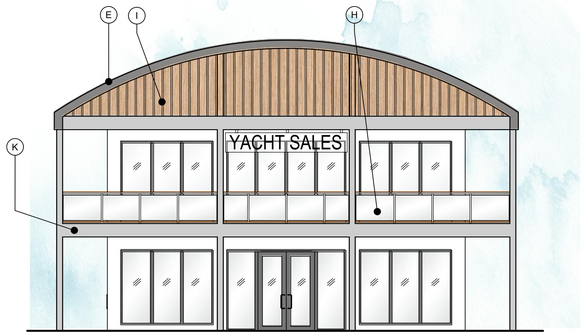
REVISIONS
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SUBMITTAL DATE 09/13/2021

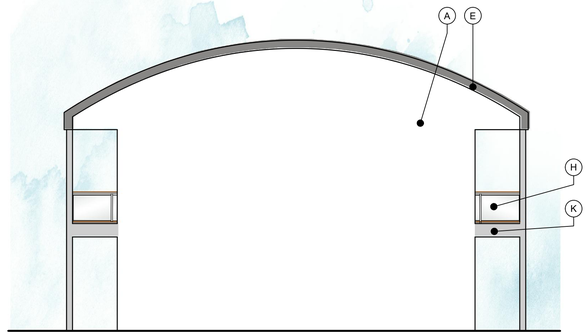
DEMOLITION PERMIT

SHIP
STORE/DOCKMASTER
COLOR ELEVATIONS

A2.06



2 EAST ELEVATION
1/8" = 1'-0"



1 WEST ELEVATION (ABUTTED AGAINST BOAT BARN)
1/8" = 1'-0"



4 NORTH ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"

A

PRIMARY COLOR
BENJAMIN MOORE-
SUPER WHITE PM-1
(TEX COAT ON CONC.
PANELS)

B

ACCENT COLOR
BENJAMIN MOORE-
WATER DROPS 659

C

ACCENT COLOR
BENJAMIN MOORE-
CAYMAN BLUE 2060-50

D

ACCENT COLOR
BENJAMIN MOORE-
CLEAREST OCEAN BLUE 2064-40

E

SLATE GRAY -
(KYNAR FINISH)
PAC-CLAD:
(MAIN ROOF)
STANDING SEAM
METAL

F

CARDINAL RED -
(KYNAR FINISH)
PAC-CLAD: STANDING
SEAM METAL CLADDING
(AWNING CANOPIES &
BOAT BARN DOORS (EAST
& SOUTH) CLADDING)

G

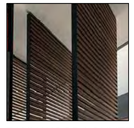
BERKSHIRE BLUE-
(KYNAR FINISH)
PAC-CLAD:
(LOW ROOF BOAT
BARN)
STANDING SEAM
METAL ROOF

H



GUARD RAILS-
JACOB ROPE SYSTEMS
STAINLESS STEEL WIRE
MESH W/ FAUX WOOD
TOP-RAIL

I



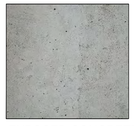
FAUX WOOD LOUVERS-
WOODN VERSATILIS:
COLOR: CUBA 99
(OUTDOOR)

J



GREEN WALLS-
JACOB ROPE SYSTEMS
STAINLESS STEEL VERTICAL
WIRE SYSTEM

K



EXPOSED CONCRETE

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

phone 561.249.4001
AA26002397

Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

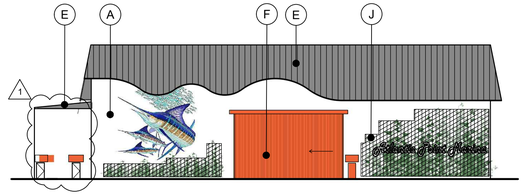
PROJECT NUMBER 21-330

REVISIONS
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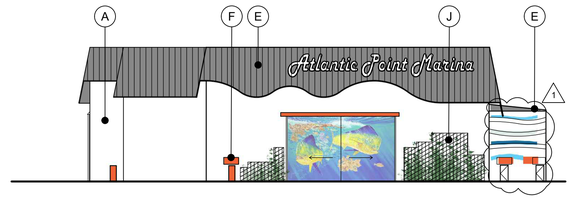
SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

YACHT SALES/FITNESS
COLOR ELEVATIONS

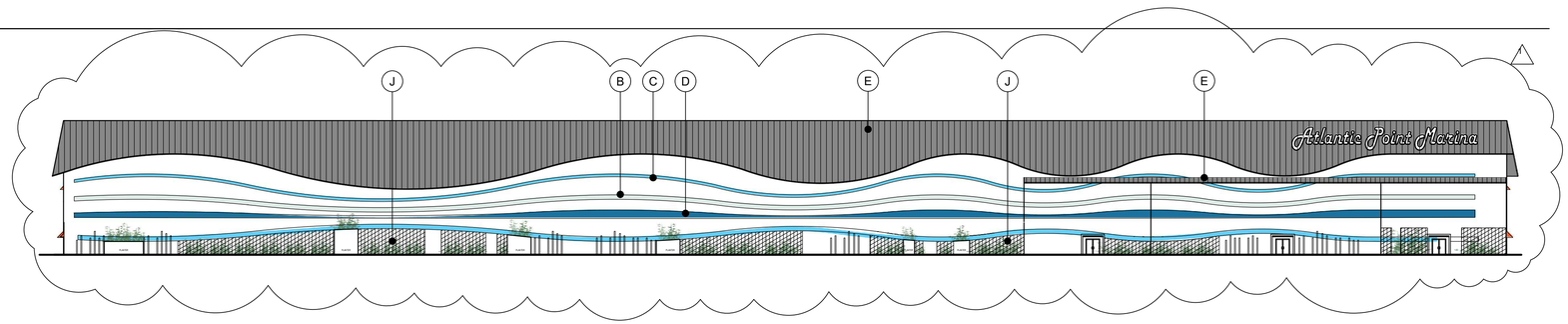
A2.07



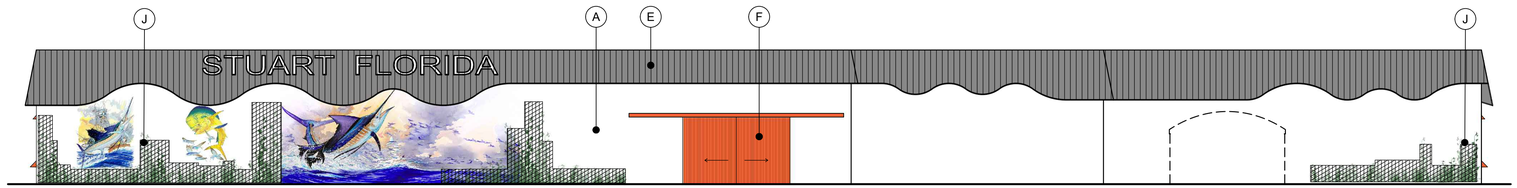
1 SOUTH ELEVATION
1/32" = 1'-0"



2 NORTH ELEVATION
1/32" = 1'-0"



3 WEST ELEVATION
1/32" = 1'-0"



4 EAST ELEVATION
1/32" = 1'-0"

A

PRIMARY COLOR
BENJAMIN MOORE-
SUPER WHITE PM-1
(TEX COAT ON CONC.
PANELS)

B

ACCENT COLOR
BENJAMIN MOORE-
WATER DROPS 659

C

ACCENT COLOR
BENJAMIN MOORE-
CAYMAN BLUE 2060-50

D

ACCENT COLOR
BENJAMIN MOORE-
CLEAREST OCEAN BLUE 2064-40

E

SLATE GRAY -
(KYNAR FINISH)
PAC-CLAD:
(MAIN ROOF)
STANDING SEAM
METAL

F

CARDINAL RED -
(KYNAR FINISH)
PAC-CLAD: STANDING
SEAM METAL CLADDING
(AWNING CANOPIES &
BOAT BARN DOORS (EAST
& SOUTH) CLADDING)

G

BERKSHIRE BLUE-
(KYNAR FINISH)
PAC-CLAD:
(LOW ROOF BOAT
BARN)
STANDING SEAM
METAL ROOF

H



GUARD RAILS-
JACOB ROPE SYSTEMS
STAINLESS STEEL WIRE
MESH W/ FAUX WOOD
TOP-RAIL

I



FAUX WOOD LOUVERS-
WOODN VERSATILIS:
COLOR: CUBA 99
(OUTDOOR)

J



GREEN WALLS-
JACOB ROPE SYSTEMS
STAINLESS STEEL VERTICAL
WIRE SYSTEM

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

phone 561.249.4001
AA26002397

Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS
1 ADDENDUM NO. 1 02/28/2022
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

BOAT BARN
COLOR ELEVATIONS

A2.08





birse/thomas

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Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

CONCEPTUAL RENDERINGS

A2.09





birse/thomas

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Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

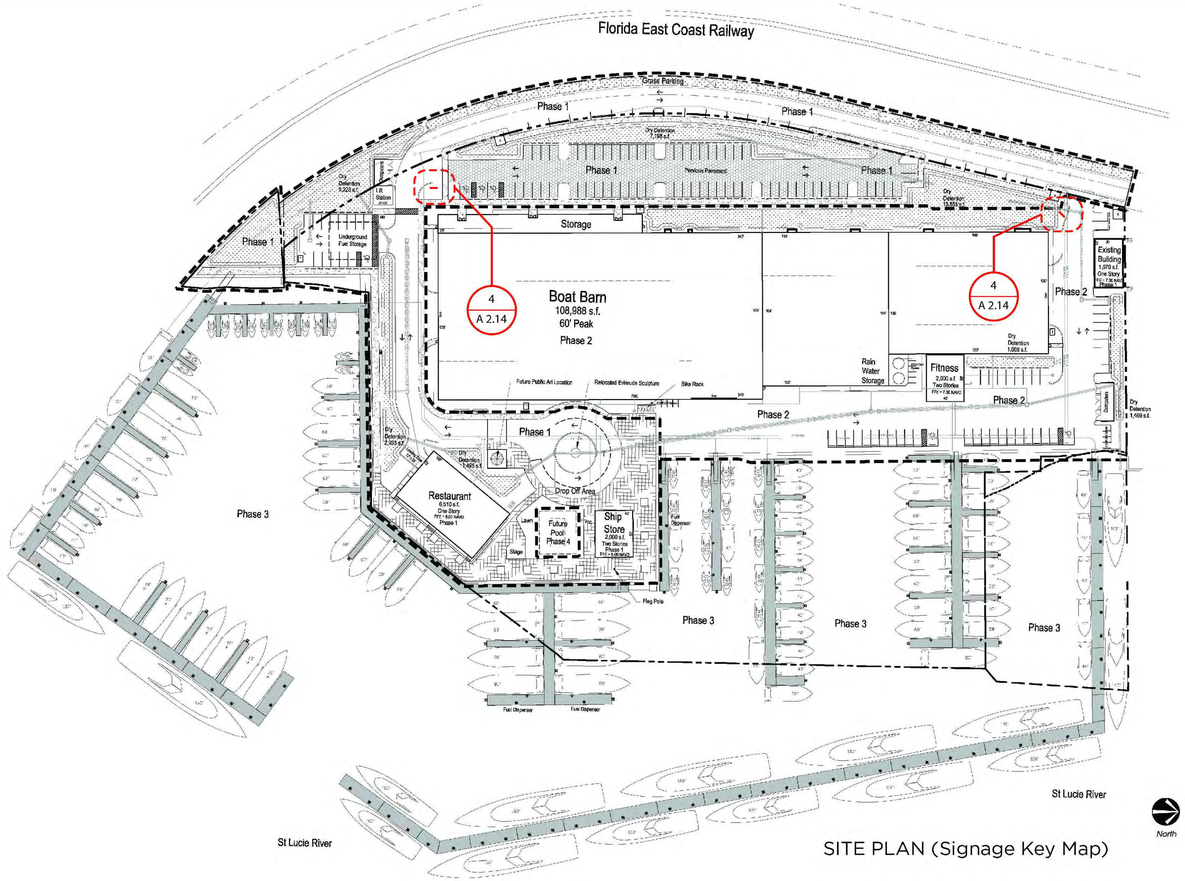
REVISIONS
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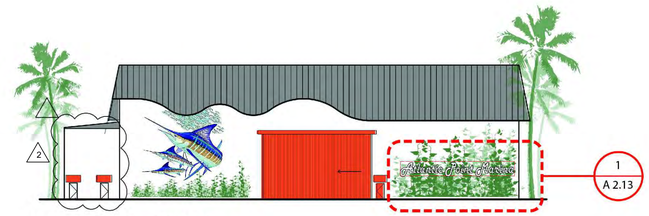
SUBMITTAL DATE 09/13/2021

SITE PLAN APPROVAL

CONCEPTUAL RENDERINGS

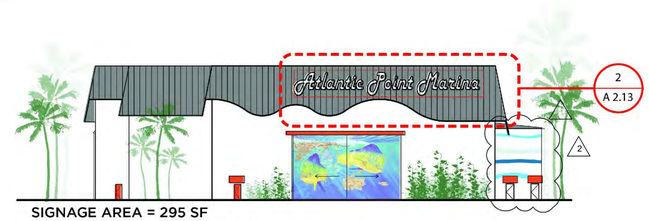
A2.10





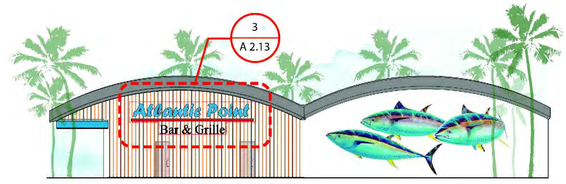
SIGNAGE AREA = 328 SF
(3.0 % OF TOTAL WALL AREA)

1 / A 2.12 NORTH FACADE (BOAT BARN): **TOTAL SF = 10,970 SF**



SIGNAGE AREA = 295 SF
(2.7 % OF TOTAL WALL AREA)

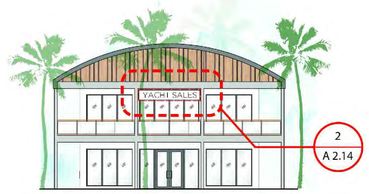
2 / A 2.12 SOUTH FACADE (BOAT BARN): **TOTAL SF = 10,970 SF**



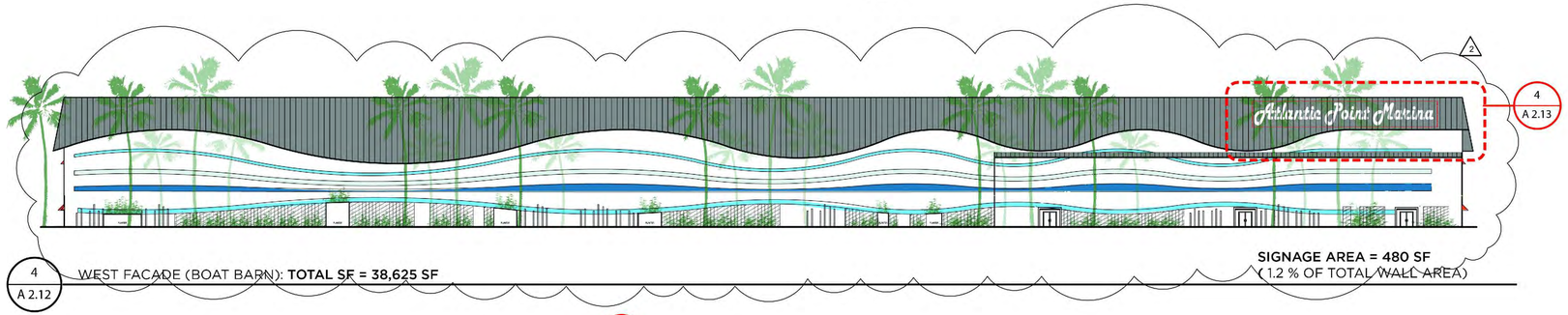
SIGNAGE AREA = 102 SF
(4.8 % OF TOTAL WALL AREA)

3 / A 2.12 NORTH WEST FACADE (RESTAURANT): **TOTAL SF = 2,115 SF**

6 / A 2.12

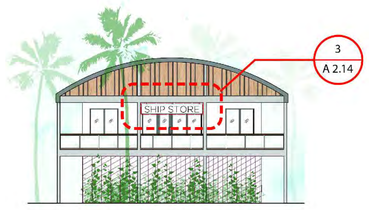


7 / A 2.12 EAST FACADE: **TOTAL SF = 1,536 SF**

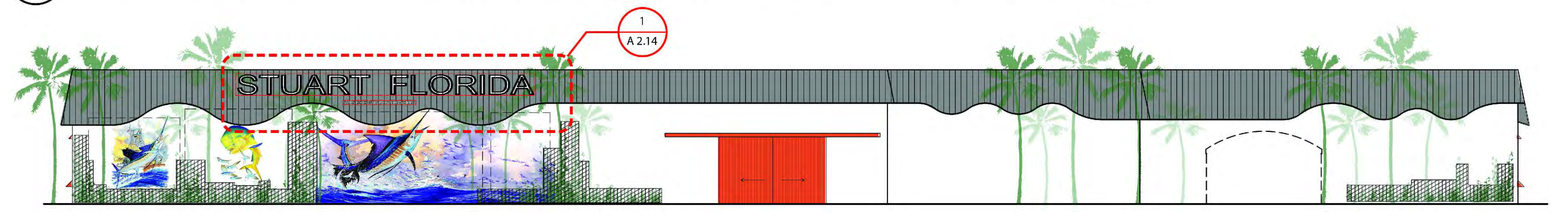


4 / A 2.12 WEST FACADE (BOAT BARN): **TOTAL SF = 38,625 SF**

SIGNAGE AREA = 480 SF
(1.2 % OF TOTAL WALL AREA)



8 / A 2.12 WEST FACADE: **TOTAL SF = 1,536 SF**



5 / A 2.12 EAST FACADE (BOAT BARN): **TOTAL SF = 38,625 SF**

SIGNAGE AREA = 1,167 SF
(2.9 % OF TOTAL WALL AREA)

birse/thomas

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ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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PROJECT NUMBER 21-330

REVISIONS

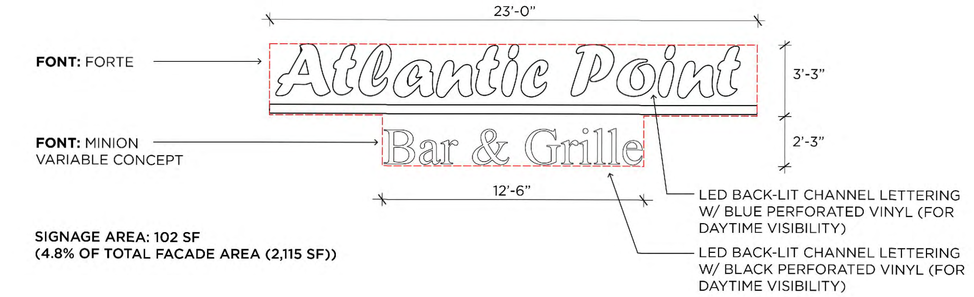
1	REVISION NO. 1	09/21/21
2	ADDENDUM NO. 1	02/28/2022
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

CONCEPTUAL SIGNAGE PACKAGE

A2.12

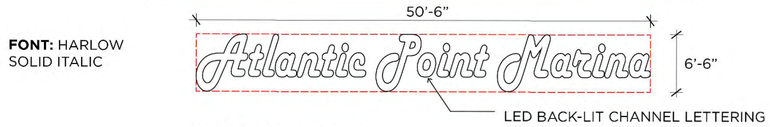




SIGNAGE AREA: 102 SF
(4.8% OF TOTAL FACADE AREA (2,115 SF))

3
A 2.13

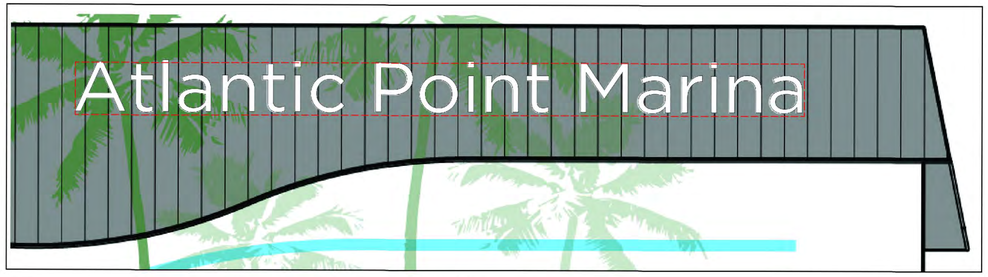


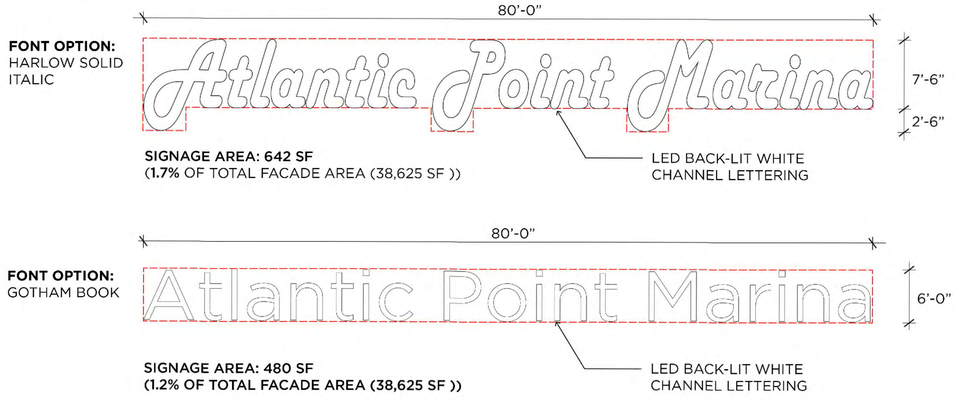


SIGNAGE AREA: 328 SF
(3.0% OF TOTAL FACADE AREA (10,970 SF))

1
A 2.13

NOTE: SIGN TO BE OFFSET 12" FROM WALL FACE TO ALLOW GREENWALL BEHIND

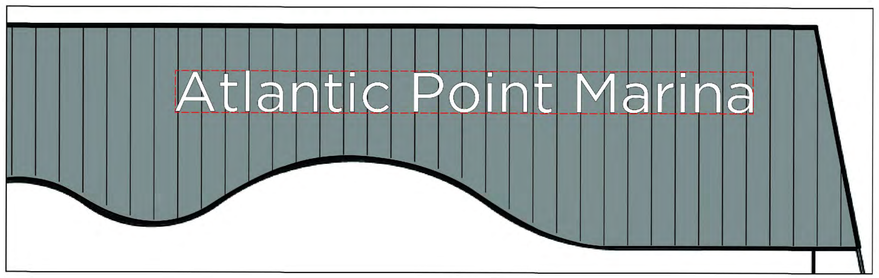


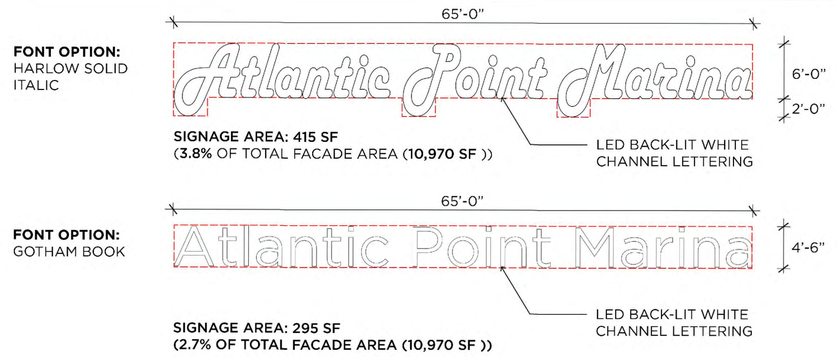


SIGNAGE AREA: 642 SF
(1.7% OF TOTAL FACADE AREA (38,625 SF))

SIGNAGE AREA: 480 SF
(1.2% OF TOTAL FACADE AREA (38,625 SF))

4
A 2.13





SIGNAGE AREA: 415 SF
(3.8% OF TOTAL FACADE AREA (**10,970 SF**))

SIGNAGE AREA: 295 SF
(2.7% OF TOTAL FACADE AREA (10,970 SF))

2
A 2.13

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

phone 561.249.4001
AA26002397

Joseph Thomas, AIA
AR94276

ATLANTIC POINT MARINA

75 NW FLAGLER DRIVE
STUART, FL

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Atlantic Point
Yacht Club & Marina of Stuart

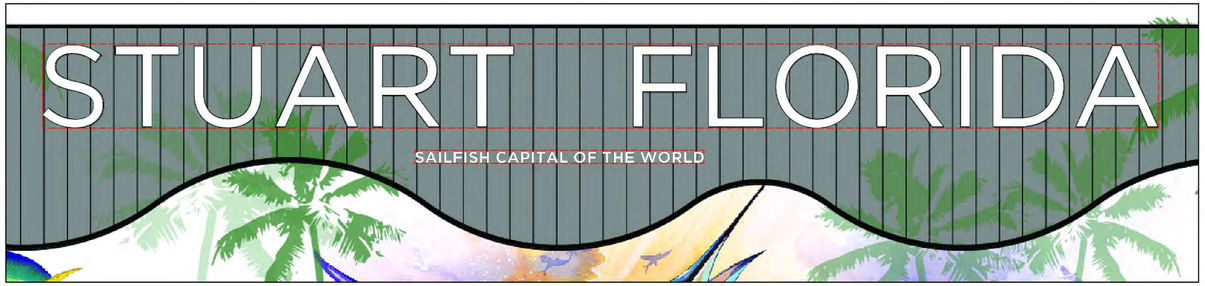
PROJECT NUMBER 21-330

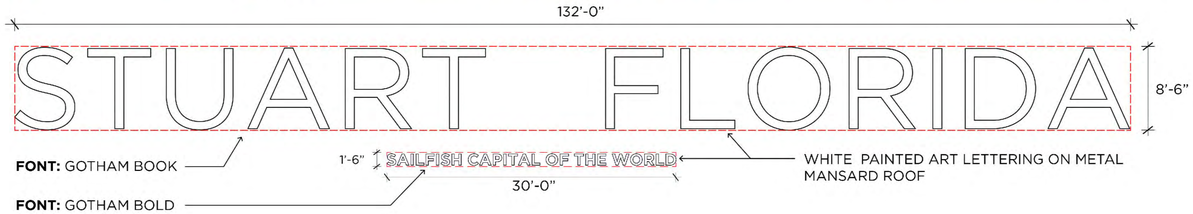
REVISIONS
1 REVISION NO. 1 09/21/21
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

CONCEPTUAL SIGNAGE PACKAGE

A2.13



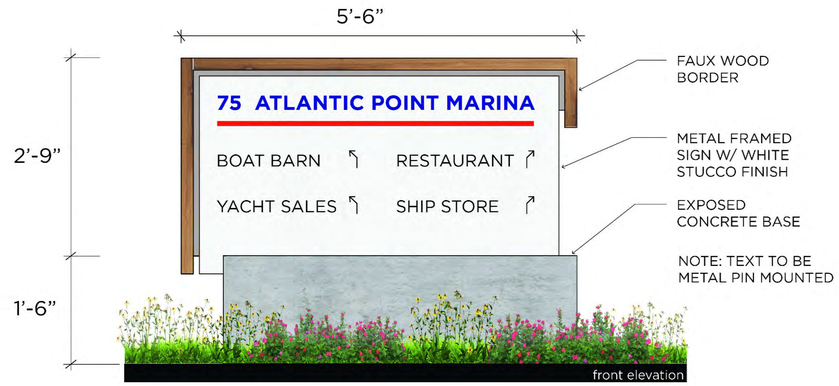


SIGNAGE AREA: 1,167 SF
(2.9% OF TOTAL FACADE AREA (38,625 SF))

1
A 2.14

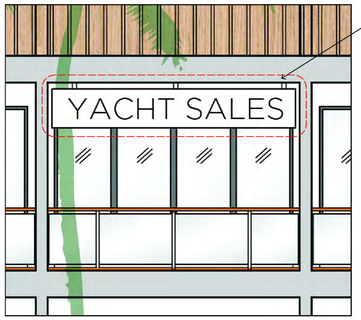


SIGNAGE AREA: 12.5 SF



MONUMENT/DIRECTIONAL SIGN

4
A 2.14



TOP MOUNT SIGN TO CONCRETE BEAM

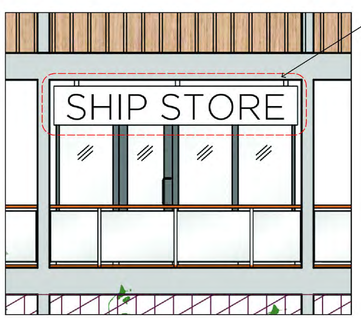
OUTDOOR LED LIGHT BOX SIGN W/ BLACK METAL FRAME



FONT: GOTHAM BOOK

SIGNAGE AREA: 29 SF
(1.9% OF TOTAL FACADE AREA (1,536 SF))

2
A 2.14



TOP MOUNT SIGN TO CONCRETE BEAM

OUTDOOR LED LIGHT BOX SIGN W/ BLACK METAL FRAME



FONT: GOTHAM BOOK

SIGNAGE AREA: 29 SF
(1.9% OF TOTAL FACADE AREA (1,536 SF))

3
A 2.14

birse/thomas

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Atlantic Point
Yacht Club & Marina of Stuart

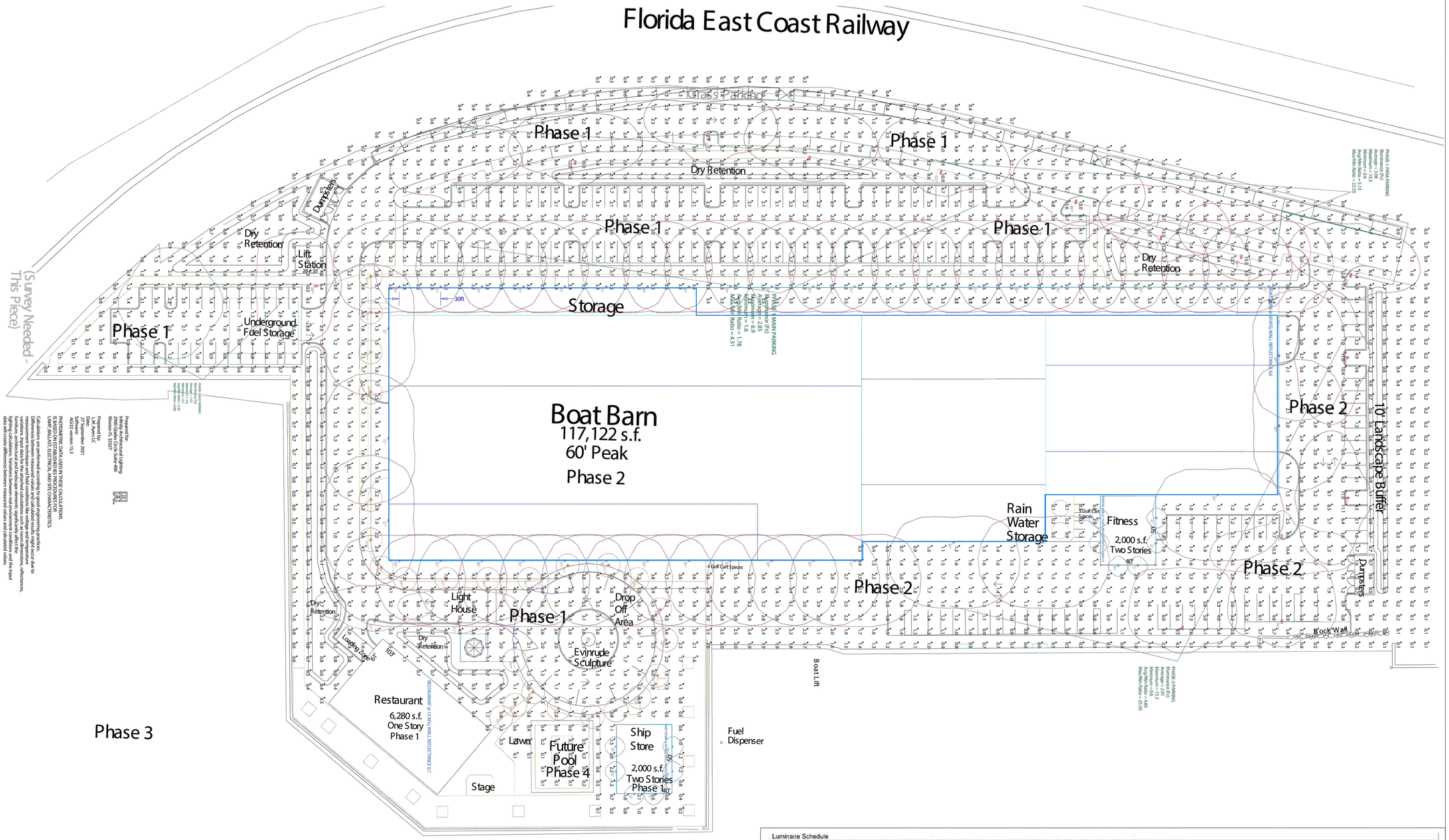
PROJECT NUMBER 21-330

REVISIONS
1 REVISION NO. 1 09/21/21
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

CONCEPTUAL SIGNAGE PACKAGE

A2.14



Luminaire Schedule

Symbol	Qty	Label	Arrangement	Lum. Watts	Lum. Lumens	LLD	LDD	BF	LLF	Description
	3	ALV -Typ4_150W	SINGLE	150	21072	1.000	1.000	1.000	0.760	ALS_ALV-Typ4_LED AREA LIGHT-TYPE-4_150W_L80=100K Hrs
	1	ALV-Typ2_150W	SINGLE	150	21075	0.800	0.950	1.000	0.760	ALS_ALV-Typ2_LED AREA LIGHT-TYPE-2_150W_L80=100K Hrs
	11	ALV-Typ3_150W	SINGLE	150	21119	0.760	1.000	1.000	0.760	ALS_ALV-Typ3_LED AREA LIGHT-TYPE-3_150W_L80=100K Hrs
	1	ALV-Typ5_150W	SINGLE	150	20000	0.800	0.950	1.000	0.760	ALS_ALV-Typ5_LED AREA LIGHT-TYPE-5_150W_L80=100K Hrs
	25	BO-360 .3K_27W	SINGLE	27	1197	0.800	0.950	1.000	0.760	TARGETTI BOLLARD MB84136L330FE_100_1xLED-WW-24W_3.2FI HEIGHT_L80=RATED LIFE
	12	MXW11-15	SINGLE	17.25	1430	0.800	0.950	1.000	0.760	TMS_MAXXIMUS WALL_ 11inDIA REFLECTOR_GLASS JAR_L80
	42	WP-13540FC	SINGLE	134.28	18017	0.700	0.950	1.000	0.665	ALS_WP-13540FC_LED WALLMOUNT_135WATTS_190513_L70=54K Hrs
	2	ALV -Typ2_75W	SINGLE	75	21075	0.800	0.950	0.500	0.380	ALS_ALV-Typ2_LED AREA LIGHT-TYPE-2_75W_L80=100K Hrs_BF PRORATE TO 75WATTS

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL POINTS	Illuminance	Fc	2.60	15.1	0.0	N.A.	N.A.
PHASE-1 AUX PARKING	Illuminance	Fc	1.80	6.3	0.7	2.57	9.00
PHASE-1 MAIN PARKING	Illuminance	Fc	2.85	6.9	1.6	1.78	4.31
PHASE-1 PARA PARKING	Illuminance	Fc	3.08	13.5	0.6	5.13	22.50
PHASE-2 PARKING	Illuminance	Fc	2.85	15.1	0.6	4.75	25.17

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Atlantic Point Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS

1	REVISION NO. 1	09/21/21
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SUBMITTAL DATE 09/13/2021

SITE PLAN APPROVAL

SITE PHOTOMETRICS

A2.15

CONTEXTUAL HEIGHT ANALYSIS



SCALE (FEET):

0 100 300 600

N

birse/thomas

5510 PGA boulevard, suite #201
palm beach gardens, fl 33418

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AA26002397

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ATLANTIC POINT MARINA

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Atlantic Point
Yacht Club & Marina of Stuart

PROJECT NUMBER 21-330

REVISIONS

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2	REVISION NO. 2	11/19/21
3	ADDENDUM NO. 1	02/28/22
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SUBMITTAL DATE 09/13/2021
SITE PLAN APPROVAL

CONTEXTUAL HEIGHT ANALYSIS

A2.16

City of Stuart

Atlantic Point Marina

Staff Report

A. Application

Applicant	Jeffrey Hardin, Middle Island Management & Development LLC
Property Owner	Middle Island Management & Development LLC
Agent for Applicant	Donald J. Cuozzo Planning Solutions, Inc.
Project Manager	Don Cuozzo
Date of Report	April 4, 2022

B. Project Description

The intent of this application is to propose a Major Urban Code Conditional Use and a Small-Scale Future Land Use Amendment for a mixed-use marina, dry boat storage, restaurant, retail including a public plaza and a public art component.

The property is located east of N Dixie Highway and NW Flagler Avenue, west of St. Lucie River and NW Federal Highway and east of the FEC railway line, in Stuart, Florida. The parcel site is approximately 10.81 +/- acres with dry land area consisting of 7.86 +/- acres, the proposal site including 7.0-acres, and a right of way donation of 0.86-+/- acres, located west of SE Federal Highway.

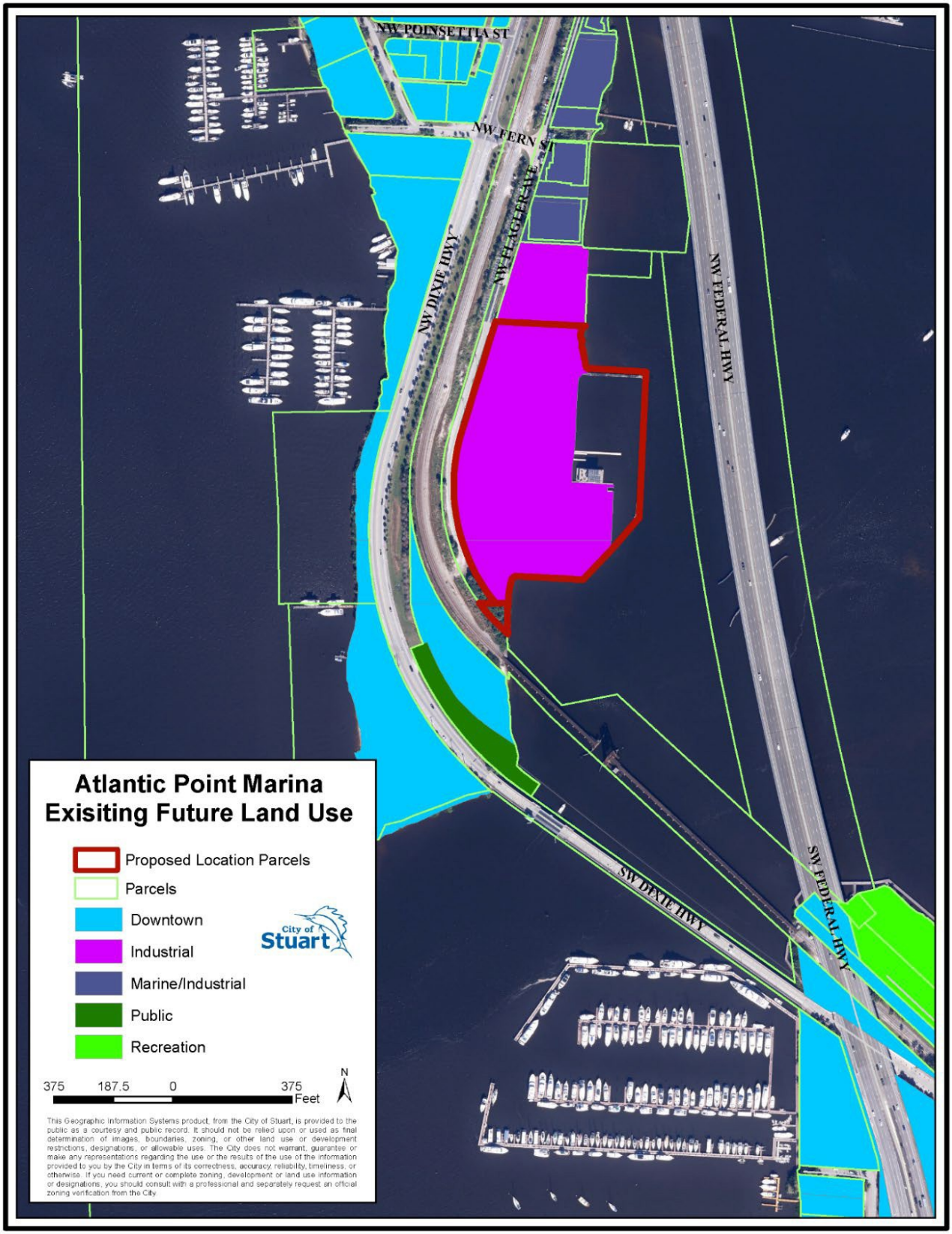
The property is zoned Industrial and has a Land Use of Industrial and is located within the Community Redevelopment Area. The Land use amendment proposes to change the Industrial land use to a Marine/Industrial land use.

Currently the property accommodates a large boat storage warehouse facility and a covered commercial canopy building built dating back to the 1930's and 1960's. Middle Island Management & Development, LLC recently purchased the property with the intent of introducing an effective and economically viable reuse as an industrial/marine boat barn, wet and dry boat slips, a ship store, and restaurant facilities on property abutting the St. Lucie River in the heart of the city. Demo may commence ahead of development approval providing all permits are secured.

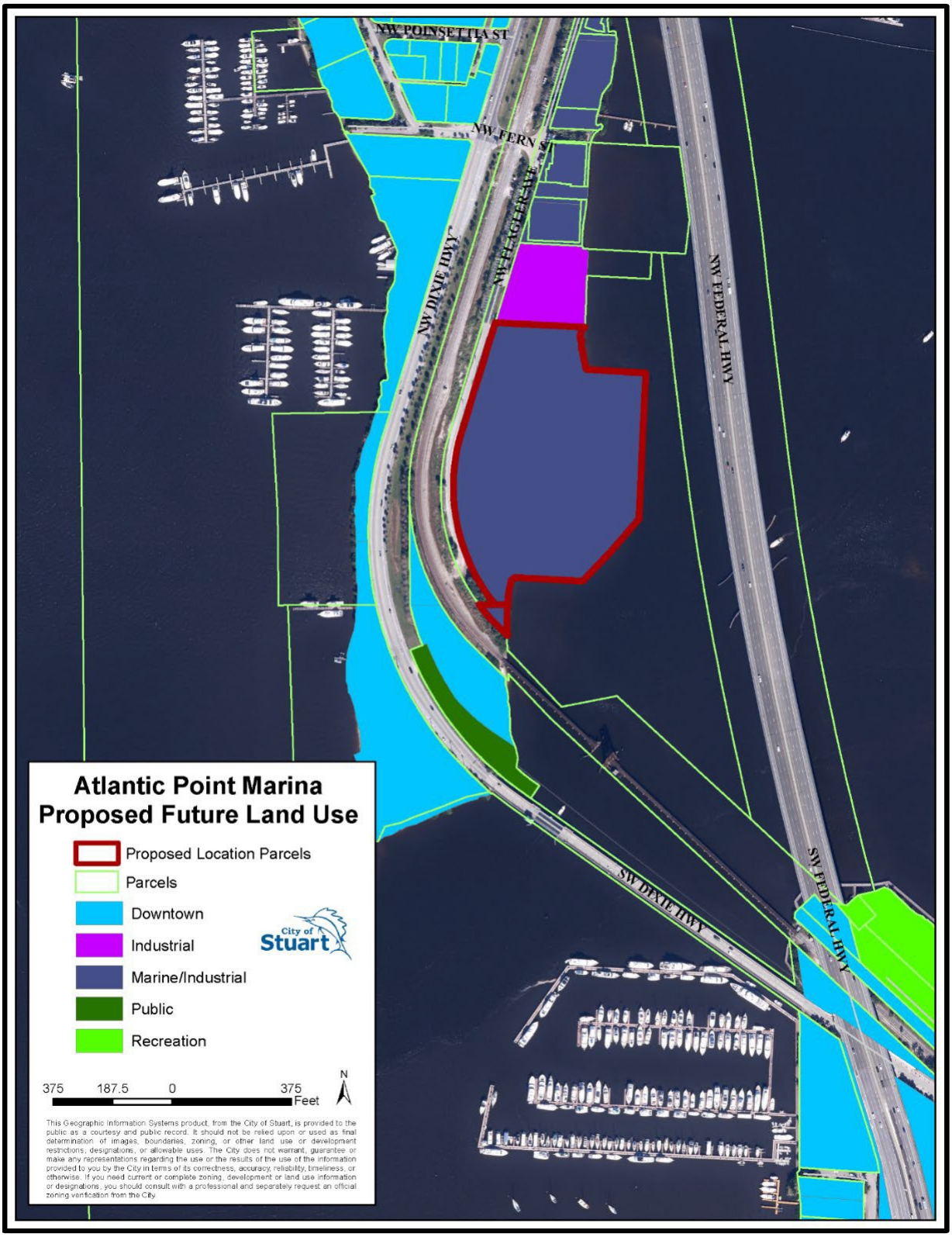
Land Use & Zoning Analysis

Existing Land Use Site	Industrial
Existing Land Use Adjacent Properties	
North	FEC Rail & Downtown FLU
South	FEC Rail & Downtown
East	St. Lucie River & NW Federal Highway
West	NW Flagler Highway, FEC Rail N Dixie Highway & Downtown FLU
Existing Zoning Site	Industrial
Existing Zoning Adjacent Properties	
North	FEC Rail & Industrial Further north Urban Waterfront
South	FEC Rail & Urban Waterfront
East	St. Lucie River & NW Federal Highway
West	Urban Waterfront
Site and surroundings within City of Stuart CRA	
Existing Uses Site	
	Storage Warehouse, Commercial Canopy Ancillary buildings & Outboard test center/boatyard
Proposed Uses Site	Restaurant, Ship store, boat barn/marina with wet and dry slips, and associated facilities.
Existing Uses Adjacent	
North	151 NW FLAGLER, LLC Marina with 3 buildings.
	Harborage Yacht – – 4 stories (approx. 60' tall) residential condos Mixed use office/residential/commercial buildings – 4 stories (approx. 60' tall)
South	City of Stuart vacant land FEC Rail
East	St. Lucie River NW Federal Highway
West	NW Flagler Avenue FEC Rail NW Dixie Highway Marina
City Approvals	BUILDING– No comments. FIRE – See comments - Staff Review SANITATION- See comments -Staff Review POLICE – No comments.
Staff Recommendation	The proposal will be reviewed against the City's Comprehensive Plan and Land Development Code. Review comments will require a resubmittal with response to each comment including revised drawings and reports as necessary.

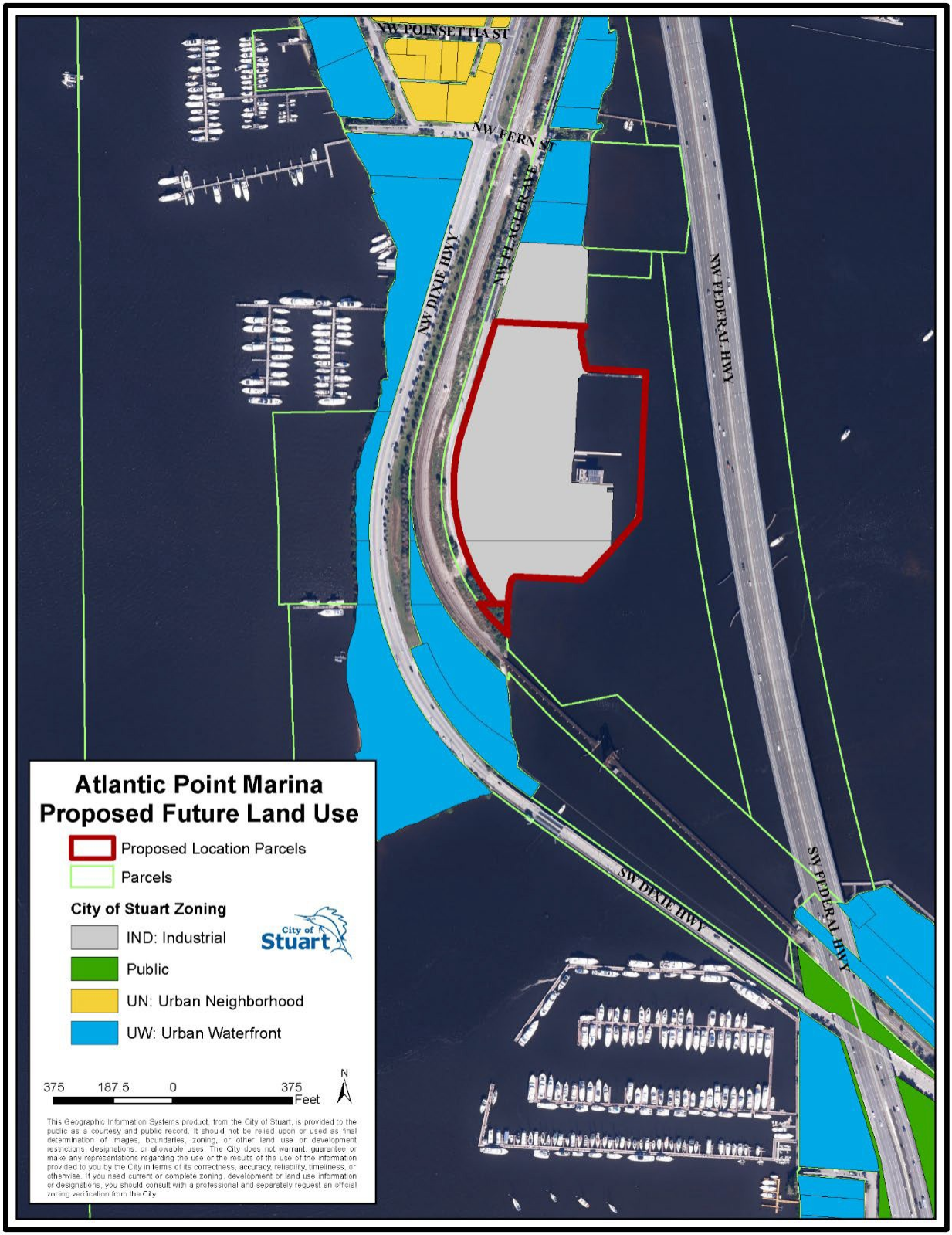
Existing Land Use



Proposed Land Use



Existing Zoning



D. Determination of compliance with Comp Plan

Future Land Use
The subject property is located within the City of Stuart Community Redevelopment Area. The existing Industrial zoning designation on the property and Industrial future land use designation are consistent with the comprehensive plan and land development code provisions. The existing buildings and previous uses currently on the subject property are considered permitted based on the structures and activities pre-dating the code.

The Industrial future land use category includes provision for land uses and activities predominantly connected with manufacturing, assembly, processing, packaging, research, or storage of products. Additional permitted uses in such areas include warehousing, wholesale activity, machine repair, and limited indoor retail sales and professional and other offices. The Industrial land use designation does not specifically reference restaurant or marina use within the Comp Plan policy language. To address this matter a request for consideration of a small-scale comp plan amendment to change the land use to Marine/Industrial Waterfront District will accommodate the proposal.

Marine/Industrial: Waterfront district which permits continuation of industrial/marine uses while encouraging mixed use development including multi-family residential; commercial; office; lodging; marinas; and civic uses. Also, public facilities and electric distribution substations are allowed.

A long-range future land use analysis including a maximum buildout for Marine Industrial land use compared to the existing Industrial land use designation.
A maximum build out analysis has been completed in accordance with Comp Plan Table Element 1.A7.2. The gross site area of 471,182 sf was multiplied by 3, the applicable FAR number from Comp Plan for property with an Industrial future land use designation. Based on this calculation a total maximum square footage of 1,413,546 sf represents the maximum build out for a property with an Industrial future land use.

The same calculation applies to the property if it was designated Marine Industrial future land use as the Comp Plan table applies the same FAR of 3 in CRA for both land use designations. Providing the same maximum build out for Industrial/Manufacturing/warehouse facilities. Residential analysis was applied to the Marine/Industrial land use designation with a maximum threshold of up to 25% residential based on 15 dwelling units per acre. Residential density for a property with a Marine Industrial flu – is calculated applying the maximum density allowed at 15 du/acre. Based on the 10.81 gross acreage that would be 237 units as a maximum. This calculation is made at the land use level to show maximums based on the table in the comp plan and does not factor in LDC code requirements.

A more reasonable approach was taken by the applicant's Traffic engineer and is as follows:

The current future land use is Marine Industrial use. The code allows for an FAR of 3.0. However, based on the buildable land area of 7.0 acres, the other restrictions in the code and standard development patterns result in an FAR of 0.5. There are many uses allowed within this land use but the worst case is High Cube Warehouse - Sort. Retail is not permitted as a primary use. Therefore, ITE Land Use Code 155 was used as a worst-case trip generation for the existing future land use.
The proposed future land use is Marine Industrial. The highest allowable use is LU 820 - Commercial Retail. The trip generation for the proposed future land use was retail shopping center. Retail use could not achieve an FAR of 3.0 based on typical uses and the code requirements. An FAR of 0.25 was used, resulting in 76,230 of retail. Residential use is also allowed in Marine Industrial, but that does not represent worst case. Table 1 provides the comparison of the trip generation for the existing future land use as retail versus the proposed future land use as industrial. As shown, the AM peak hour would have fewer trips in the proposed condition and the PM peak hour would have 76 more peak hour trips. See table 1 in Land use traffic report attached to the agenda.

Consistency with the Comprehensive Plan
Chapter 1, CGMP Policy GOAL STATEMENT C establishes the future land use goal for the Community Redevelopment Area (CRA) [is] to maintain and strengthen the beauty, economic viability, cultural resources and social importance of the area. This shall be accomplished through mixed-use zoning, preservation of historic buildings, innovative zoning and land use regulations, demolition, reconstruction or substantial renovation of existing buildings and infrastructure, enhancement of marine resources, and other measures to promote urban redevelopment.

The proposal offers enhanced marine resources and includes a restaurant and ship store facility to promote effective and attractive urban redevelopment

Chapter 1, Policy C1.2. The City of Stuart shall continue to implement the Stuart Architectural Regulations which have been adopted based on the Stuart Urban Code for the CRA to regulate materials, colors, and landscaping for buildings. These regulations shall encourage traditional, durable construction with materials that age well and fit with the existing architectural heritage of Stuart.

The project has been designed to incorporate a site layout and building designs sympathetic to the property's location with the CRA and adjacent to St. Lucie River. With the approval of an urban code conditional use approval, the proposal has been designed to meet the requirements of Policy C1.2.

Chapter 1, Objective C3. - Urban redevelopment.

Revitalize the designated Urban Redevelopment Area (URA), including the CRA, by:

A. Maintaining or increasing the amount of development and redevelopment.
B. Maintaining or increasing the percentage of County-wide employment located in the URA and CRA and the City of Stuart as a whole.
C. Reducing blight conditions as defined by F.S. § 163.340(8)(a) and (b).
D. Achieving and maintaining a 90 percent occupancy rate of commercial and office spaces.
E. Enhancing the City's marine resources.
F. Promote pedestrian mobility throughout the CRA.

The reuse of the existing property by replacing all but one of the existing older buildings, with a modern and more practical mix of uses and appropriately marina scaled units, is consistent with the objectives of policy C3. As the site has been purchased by the applicant, approval of the proposal would achieve the retention and expansion of a marine based use, generating City-wide employment while being located within the City of Stuart CRA. Specifically enhancing the City's marine resources and promoting pedestrian mobility offering enjoyment of the water-based facilities at the Atlantic Point Marina.

Chapter 1, Policy C3.3. The City shall promote waterfront access through FLUE Objective A2 and its associated policies in order to increase the attractiveness and desirability of the CRA for new development and redevelopment.

The proposal, when completed, will achieve waterfront access in pedestrian, boat, and access to water within the heart of the CRA.

Chapter 1, Policy C3.5. The City shall promote compact urban form and discourage urban sprawl consistent with FLUE Objective B1 and Policy B1.1.

The property is a brownfield, infill project, replacing most of the older buildings and bringing the entire site up to date while introducing additional use and accessibility within an established urban area.

Chapter 1, Policy C3.12. The City of Stuart shall promote land use patterns which complement multiple modes of transportation, including transit, pedestrian and bicycle amenities, and marine transit such as ferries, water taxis and upland support facilities (e.g., designated anchorages, marinas, dinghy accommodations, canoe/kayak launches and the City's "blueways" program).

The proposed marina type facility is consistent with the objective, offering proposed uses very much water based, within half a mile of downtown Stuart.

Chapter 1, Objective A2. - [St. Lucie River access and views.] Enhance public access to and public views of the St. Lucie River waterfront through implementation of the following policies.

The proposed design, layout, and balance of uses included on the site plan provide opportunity to enhance and increase public access to the property.

Chapter 1, Objective B3. - Desirable pattern of land uses.

Promote and enhance a pattern of land uses that are compatible; that are convenient to City residents, businesses, and visitors; that avoid inappropriate or wasteful use of land; and that encourage efficient use of land, resources and facilities. Future land uses shall be designated to support the existing or planned community character, thereby prohibiting the development or expansion of uses which are inconsistent with the community's character. Reduce blighted areas through redevelopment. Land development and use regulations shall include provisions to ensure consistency with this Comprehensive Plan.

Chapter 1, Policy B3.2. All development shall be compatible with and complementary to surrounding land uses and shall not unduly affect existing approved activities.

The proposed land use is consistent with the existing pattern of development, compatible with surrounding established Marine/Industrial Waterfront District land use patterns to the north. Re-use of a property with a more effective site layout and mix of uses will add significant improvement in terms of design consistent with the Comprehensive Plan policies and objectives.

Chapter 9, ECONOMIC DEVELOPMENT ELEMENT GOAL STATEMENT - A The City will develop and maintain an economic environment that will encourage the creation, expansion and retention of business within city limits while maintaining a high quality of life for its residents.
Objective A1. - Retain existing businesses and attracting new businesses. Provide supporting services for the retention of existing businesses and attracting new businesses.

Effective retention of a marine related use and proposed reuse of the existing marine industrial site in the form of a new water based marina type facility, and

introduction of a restaurant and ancillary uses, fosters marine industry related business expansion and retention in a central location of the City of Stuart CRA.

Policy A1.1. The city will seek to ensure the allocation of an appropriate quantity of lands that are desirable for commercial and industrial purposes to serve future growth needs of the City.

A proposal to amend the land use from Industrial to Marine/Industrial Waterfront District provides an opportunity for additional uses, not limiting a waterfront property to only industrial uses. The concurrent request to consider a major urban code conditional use request to accept restaurant and marina use on the property is consistent with the land use change to Marine Industrial and the Urban Code. Retaining employment based use opportunities on the existing property and opening up opportunity for uses accessible for public enjoyment.

Policy A1.2. The city will seek to prioritize the development of sites with high visibility and direct access to major transportation corridors for targeted and other industries and uses that encourage job creation.

The proposed mix of uses will be well-served and accommodated with access to St. Lucie River, easy access to Okeechobee Waterway, the Intracoastal Waterway, and the Atlantic Ocean. Flagler Avenue is parallel to the subject property and easy access exists to Dixie Highway.

Policy A1.4. The city will encourage the designation and preservation of industrial land for industrial uses.

The request to amend the land use from Industrial to Marine/Industrial Marine/Industrial Waterfront District is consistent with the property location and the pattern of land use designations to the north. Rather than removing the Industrial land use designation, the comprehensive plan amendment provides the opportunity for the property to have a Marine/Industrial Waterfront District land use designation for additional commercial uses conducive with water-based activities.

The proposal is consistent with **Comprehensive Plan Objective B1 – Compact Urban Form,** in that the project discourages urban sprawl by facilitating urban redevelopment an infill development of properties. The proposed marina/boat barn and restaurant facilities are considered suitable modern replacements for the existing uses on the subject property, while retaining a dependence as a water-based boat industry use in the heart of the CRA.

The development of a marina facility with boat barn and a restaurant in this part of the City of Stuart plans well for urban infill and redevelopment of lands and achieves a compact urban form of development. The project is also consistent with Comprehensive Plan Objective B3. Desirable pattern of land uses. The proposal will enhance the pattern of development in a way that is compatible and convenient to City residents, businesses and visitors and avoids inappropriate or wasteful use of land.

Small Scale Comprehensive Plan Amendment

The Atlantic Point Marina application includes a request consistent with LDC Section 11.01.07. - "Small scale" comprehensive plan amendment application and meets the definition of a small-scale comprehensive plan amendment as defined in F.S. § 163.3187.

Section 11.01.07.G. includes specific policy provisions required to be considered when assessing a request for a small-scale comprehensive plan amendment. Specifically, the local planning agency shall consider the following criteria:

a. The existing land use pattern;

A detailed description and analysis has been provided demonstrating the proposed land use change from Industrial to Marine/Industrial Waterfront District is consistent with previous marina use on the property and future use as a boat barn/storage marina and restaurant, in addition to other uses. The existing land use pattern includes Marine/Industrial Waterfront District designated lands further north, in addition to Downtown land uses.

b. The possible creation of an isolated land use classification unrelated to adjacent and nearby classifications;

A large extent of property located on the St Lucie River has a land use designation of Marine/Industrial Waterfront District or Downtown Redevelopment designation. The request is consistent with these establish land use patterns and water based developments within the CRA and a mix of uses including commercial, industrial, and residential uses.

c. The population density pattern of the area and possible increase or overtaxing of the load on public facilities such as schools, utilities and streets;

N/A the proposal will not add any additional residential units on the subject property.

d. The possible overloading of the city's sewage collection, treatment and disposal facilities;

The conceptual engineer documents, including stormwater management plan, provide sufficient detail to demonstrate the proposed effective reuse of the established industrial/marina type facilities without overloading the city's sewage, treatment and disposal facilities.

e. The possible overloading of the city's drainage system;

The stormwater, drainage reports and conceptual engineer documents attach demonstrate the proposal may be accommodated without overloading the city's drainage system.

f. The existing classification boundaries in relation to existing conditions on the subject property;

Existing conditions on the subject property as a water dependent boat/marina type facility will be improved with the introduction of replacement buildings and better

utilization of the site.

g. The existence of changed or changing conditions which make the passage of the proposed amendment necessary or appropriate;

The original buildings currently on site were constructed in the 1930's and 1960's. The opportunity to demolish existing buildings and introduce modern, boat barn, restaurant, ship store, and ancillary uses and offer wet and dry boat storage and other amenities, will offer an effective reuse of the property. To accommodate such a change a land use amendment to Marine/Industrial Waterfront District and a major urban code conditional use approval to allow the marina and restaurant use, is required. Such uses are allowed within the provisions of the CRA Urban Code.

h. The impact of the proposed amendment upon living conditions in the adjacent neighborhood;

The property has been established as an industrial/water based boat warehouse facility since the 1930's and 1960's. The proposed reuse of the property as a marina with boat storage, restaurant, and ancillary uses, is consistent with uses permitted in the Urban Code and provisions allowed with a request for a major urban code conditional use application to address the underlying Industrial zoning district designation. The property boundary is a significant distance away from established Residential areas to provide separation and not negatively impact those residents.

i. The impact of the amendment upon the flow of light and air to adjacent areas;

Not applicable as per the distance and separation between established property boundaries. However, lighting plans will be submitted in support of the project ahead of the construction stage in the proposal.

j. The impact of the proposed amendment upon property values in the adjacent area;

The proposal will introduce a marina facility of a scale, layout, and massing, appropriate for a water-based use. Removal of the old buildings and replacement with modern, well designed architectural elevations of varying scale and height, will compliment and add value to the surroundings. Introducing a restaurant on the water, with access to St Lucie River and downtown Stuart, will also provide additional value to the CRA and properties within it.

k. The impact of the proposed amendment upon improvement or development of adjacent property in accordance with existing regulations; and

The proposed amendment is consistent with property further north which shares the requested Marine/Industrial Waterfront District future land use. The use is also consistent with the goals, objectives, and policies of the Comp Plan pertaining to retention and expansion of marine based uses, encouraging access to water, and employment generating use.

l. The existence of other adequate sites in the city for the proposed land use classifications already permitting such use.

Research of existing established marinas and similar type restaurant and water-based uses within the City and Martin County has identified waiting lists for dry and

wet boat storage. Restaurants are popular destinations for both boat owners, tourists and existing residents within the Treasure Coast. The proposal will provide additional facilities to compliment the established uses while replacing the existing vacant buildings on site. Replacement of old buildings with a new development is an effective reuse of the property that was already established as an industrial water based use. Retention of one of the old buildings is also of benefit to the project and wider area it serves.

Zoning & Site Design Review Comments

Acknowledged. Stormwater treatment design and low impact development approaches have been achieved in project design and detailed as follows:

Stormwater Treatment & Low Impact Development Options:	***Provided in Atlantic Point Marina project:***
a. Tree box filters	*Thirteen tree boxes are proposed* a. *around the restaurant and pool area.* Recognized
b. Littoral planting	*Littoral plantings are not proposed.*
c. Rain gardens	*A rain garden is proposed in dry detention area 3. Please see post development drainage plan.* Recognized
d. Bio-retention swales	*Bio-retention swales are proposed in dry detention areas 2, 4, and 5. Please see post development drainage plan* Recognized.
e. Green roof	*A green roof is not proposed.*
f. Green wall	*A green wall is not proposed. On elevations?*
g. Filter strips in parking lots	*Filter strips are not proposed.*
h. Underground storage	*Approximately 572 linear feet of exfiltration trench is proposed. Please see post development drainage plan.*
i. Pervious concrete/pavement	*All proposed sidewalks are pervious concrete. Approximately 0.56 acres of proposed parking is pervious pavement.* Recognized
j. Baffle Box	*A nutrient separating baffle box is proposed in dry detention area 6. Please see post development drainage plan.* Recognized

Staff Review Comments 1. Documents & Plans Reviewed - Details of documents and plans reviewed with dates to be inserted by staff. Staff will use the dates from the last revision prior to meeting with the Community Redevelopment Board.

Response: ***Acknowledged and understood.***

Response II: Dates will be utilized as discussed in the 3/8/2022 meeting with the project team, Development Director and Staff members present.

Staff Review Comments 2. Zoning & Site Design

1. Please provide Site and Building descriptions such as building materials and type of construction if the boat storage is metal, what is the cladding? Are the illustrations applied to the building or are they painted or perhaps applied decals? How are they seen at night?

Response: ***The Boat Barn is proposed to be a hybrid structure utilizing prefabricated steel structure to accommodate the large spans and the exterior walls will be constructed of concrete tilt-wall. The concrete tIlt-walls will have a textured tex-coat finish that resembles stucco. The planned artwork will be printed on vinyl and applied at the indicated locations. The boat barn will have wall mounted downlights to illuminate the walls of the boat barn and artwork at night. These will be located behind the mansard to roof to help conceal the lighting source from some angles.*** ***Recognized***

The other buildings will be constructed of tradition concrete masonry units (CMU) and steel framing which includes steel beams, joists, and columns. The exterior walls and columns will be finished with a smooth painted stucco. **Recognized**

2. Revise the Site Plan (Conceptual Design Group) to match data in legend on plan by EDC as they differ. Please remove Legend from EDC civil site plan so the site data legend lives on one plan only. (reduce scale if necessary, on Conceptual Design's site to fit legend on sht.1. e.g. EDC plan pervious 229,799; compared with CDG 226,132s.f.; etc.

Response: ***The land use data has been removed from the Preliminary Utility & Drainage Plan provided by EDC. Please see the updated plan. The site areas have been coordinated to match as requested and the site plan reduced to one sheet.*** ***Recognized***

3. Please describe the lighting for each building and lighting at theplaza.

Response: ***The boat barn will have wall mounted downlights to illuminate the walls of the boat barn and artwork at night. These will be located behind the mansard to roof to help conceal the lighting source from some angles. The two-story buildings will have wall mounted 'nautical' style down lights at the front of the building while surface mounted down lights applied to the underside of the soffits will illuminate the perimeter at the first and second levels. The bar/restaurant/BOH building is proposed to hove surface mounted down lights applied to the underside of the soffits and suspended decorative light fixtures in the seating area.*** ***Recognized***

Plaza lighting is provided with a combination of bollards and pole mounted light fixtures. Lighting along the waterfront and bar/restaurant will have propane fueled lanterns to provide walkway illumination. **Recognized**

4. Parking – Provide 1 space per 4 slips + 1 per employee

Response: ***Please see revised site plan with parking shown at 1 space per 4 slips for the marina and the employee calculations are also included on the site plan.*** ***Recognized***

5. Provide bike racks per Sec. 6.01.20.G for non-residential development.

Response: ***Bike racks for ten (10) bicycles have been provided as requested.*** ***Recognized***

6. Clarify if existing Evinrude sculpture remains in place or is relocated to a new location.

Response: ***The Evinrude sculpture has been relocated to a new location on the subject property. Refer to site plan.*** ***Recognized***

7. Please provide an operational statement as to what the boat storagerequires.

Response: ***An operational statement is attached for staff's review.*** ***Recognized***

8. The City's noise ordinance will be strictly enforced, provide measures that will mitigate sound from live entertainment from the stage such as sound barriers that will provide sound from carrying across open water.

Response: ***Any project existing, or proposed, is required to adhere to the City's noise ordinance. The noise ordinance is acknowledged and understood.*** ***Recognized***

9. Please provide a floor plan and a section drawing of the boat barn that includes elevation markers at the building eve and overall total height.

Response: ***Exterior Elevations have been revised to clearly mark the bottom of main roof elevation of the mansard roof which is at an elevation of 45'-0". See detail 5/A2.04 for the requested Building Section of the proposed Boat Barn. The lowest point of the mansard roof wave is 29'-0" and the highest point of the mansard is 45'-0".*** ***See Future Land Use table provided***

Response II: Exterior Elevations have been revised to clearly mark the bottom of main roof elevation of the mansard roof which is at an elevation of 45'-0" at the highest point (top) of the wave roof section. See detail 5/A2.04 for the requested Building Section of the proposed Boat Barn. The lowest point of the mansard roof wave is 29'-0". The highest point of the mansard is 60'-0" continuous, and the inside of that space is for equipment to operate, mechanical, racks, etc., and is non-habitable space. Please also see the response to item #35 for additional details.

10. Please provide a Section dwg that shows comparison of bldg. Ht. with surrounding buildings, bridge and Harborage Bldgs.

Response: ***See drawing A2.16 for a contextual height analysis that includes an aerial site plan and two cross sections through the site and neighboring areas.*** ***Received***

11. Provide details of the rock wall (rip rap?) at the north end of the site.

Response: ***The rock wall at the north end of the site will be constructed with rip rap rubble.*** ***Recognized***

12. Remove reference to light house – reference as future public artlocation.

Response: ***Acknowledged. Site plan changed to reference as per staff's request.*** ***Recognized***

13. Define entrance to boat barn with different hatching and lineweights.

Response: ***Please refer to revised plans.*** ***Still don't see any hatching and or designations for surface paint or otherwise at the entrance to the boat barn.***

Response II: The boat barn doors are shown as walk in doors and doors accessible by vehicles. The walk in doors are shown as standard architectural doors in plan view, and the boat barn vehicle doors have a graphic hatch with the label "Door" within the hatch to show the locations of those doors. There are three locations of the vehicle doors, and they are on the north and south ends of the building and the third is on the water side.

14. Provide pedestrian connection with pavers, textured concrete, landscaping, etc. (paint at the fork-lift area) from retail/restaurant to fitness building/area.

Response: ***Due to safety issues the texture pavement cannot be included where the forklift operates.*** ***Then take the opportunity to designate this area as active with Fork-Lifts and not accessible by the public.***

Response II: Other marinas in this regional area are set up with this same boat launch/retrieval system. There will be signage explaining that this is the area where the boats are placed into and removed from the water from the boat barn and the owners/users will be on the docks to receive / return their boat. There is also a decorative pavement on the opposite side of the fork lift area that matches the plaza/drop off circle pavement type.

15. Provide 1 parking space per 4 boat slips +1 parking space peremployee.

*Response****: Same comment as per 'staff comment 4.*** ***Thank you***

16. Provide 1 parking space for every boat slip that is equipped with utility hook up.

Response: ***There will be no overnight live aboard provision, so this requirement is not applicable for this project.*** ***However, utilities are being provided for all boat slips due to the type of vessels that will be accommodated. Staff will provide condition for development that will prohibit boat slips being used for overnight stays or liveaboard.***

Response II:

Utilities will provided to all vessels to maintain them when not in use. Most all vessels today require utilities to maintain onboard systems while moored. For larger yachts and transients, in the event of an overnight stay, they will be responsible for their own transportation and the marina plans to provide transportation for crew. The Marina Permit with FDEP will have a condition that will not allow "live a boards", as provided for in FL Statutes Chapter 327 (Chapter 327 Section 02 - 2021 Florida Statutes - The Florida Senate (flsenate.gov) however it does allow for "overnight stays" on vessels and that is the permit that provides jurisdiction and should be adhered too for the project.

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17. Provide an operational statement for the boat storage building including a section drawing **See attached operational statement section showing the racking system.**

18. Describe the type of stabilized parking surface at the Right of Way.

Response: ***The stabilized parking surface in the right-of-way will be comprised of turf block pavers that provide a permeable surface.*** ***Recognized***

19. Please complete an application to petition the city for abandonment of Right-of-Way at Flagler Avenue.

Response: ***The project team and applicant are in communication with staff regarding whether a right of way abandonment application will be required.*** ***If the applicant is not going to petition the City for abandonment of its right-of-way at the end of NW Flagler Ave., the applicant is required to meet with the City's Public Works director (Milton Leggett) by contacting Public Works Streets & Stormwater Teams division assistant Miriam Marrero to set up a time for your legal representative to meet with Milton Leggett (Public Works Director) to discuss this necessary maintenance agreement. Miriam's contact number is 772.288.5398. Provide this perpetual maintenance agreement as part of the next resubmittal to be reviewed and acceptable to the City attorney. The PMA will be included as an exhibit to the approving Ordinance for the Major Urban Code Conditional Use approval.***

Response II: The team is currently working with the City and Staff on these items.

20. Please show elevations without Palm trees (unless they are actual)

Response: ***The trees have been removed from the COLORED ELEVATIONS as per staff's request as those shown on the original drawings are not actual.*** ***Recognized***

21. Provide a phasing plan separate from the site plan. (Remove dashed phasing lines from the site plan).

Response: ***Attached is a separate phasing plan and modified site plan as per staff's request.*** ***Recognized***

22. Please define the area between the sidewalk and the dock on Sht. L-3 (water?)

Response: ***The area in question will be a new seawall.*** ***Recognized***

23. Architectural Elevations – 45' to the eave with up to 15' for sloped roof. Provide detailed section of the dry boat storage.

Response: Attached is a detailed section of the dry boat storage demonstrating compliance with the height requirements. ***The Boat Barn had 3.5' x 9.25' recesses in the façade but they were 120' apart which exceeds the 100' length permitted in the code. The locker storage layout has been revised to meet this requirement. In addition, the southwest storage room has been reduced 3' x 35' from the last door to corner of the building which provides a varied length of 40% the total recessed wall length. However, due to the nature of this building being a boat storage building is not feasible to make these changes on the other sides. Instead, green walls are used on each side of the boat barn building to help bring in an element of nature and soften the scale of the building.*** ***It appears from the response above that the applicant may have been reviewing the urban highway code criteria. Please adjust response using 'Urban Waterfront' ("UW") urban subdistrict including E.1.d.vista, e. max cum. Façade 160, f. additional vista, etc.***

Response II: The property is not zoned or proposed to be zoned UW or UH. Neither code cited by staff is applicable. .

The primary façade along the street (West Elevation) includes flat metal canopies/awnings over each of the six entry doors. In addition, vertical foam applied formwork and green walls have been added to the ground floor which account for over 50% of the ground floor. Recognized

Other design treatments used on the primary façade are overhangs at each door, sculptural waves, peaked (wave-style) mansard roof form, decorative light fixtures to illuminate the walls, and ornamental details such as the vertical foam elements and green wall. Recognized

Landscaping

24. Plant List Legend – Show icons to more clearly describe the plant species, sizeand
25. Substitute a higher quality palm tree e.g. Canary Date, Sylvester palm at the Restaurant/Retail Pool area.

Response: ***The plant list attached includes all quantities, sizes, and species. Due to the ambiance the client is aiming to create, the atmosphere calls for Coconut Palms as provided on the landscape plan.***

Response II: The response above is still accurate, with addition information about the landscaping being provided proved listed below.

The project is providing 19% open space with many areas of that open space being planted to reduce the use of sod on the project. By reducing sod, less water is utilized during the irrigation process, thus aiding in water conservation. There are many bioswales and detention areas that will also be planted in lieu of being sodded. There are multiple tree planters being provided with the plaza space within the restaurant, marina and ship store area that will provide shade for the patrons and make that an inviting space.

There are palms being provided adjacent to the boat barn that are more than twice the City's minimum palm installation height to enhance and add interest to the City's required plants adjacent to the building and those are also native palms, and they also utilize less water.

There is a specimen palm that will be relocated on site that will add interest to the project, and many planting areas that utilize water conservation that will also add interest. The planting proposed is harmonious to the surrounding area and will be aesthetically pleasing and create a wonderful ambiance to the site that has been hidden from the public for so many years.

26. Describe the flooring material at the hardscaped areas including turnaround, docks, restaurant ship store and fitness areas.

Response: ***Flooring material around the restaurant, ship store and pool will be comprised of paver bricks. Call out in Site Data legend as 'pervious brick paver'.***

Response II: The site data legend has been revised to call out pervious pavements. The actual material types, color, and design/patterns will be provided during the construction drawing process.

27. Describe the golf cart parking area.

Response: ***The golf cart parking area is provided adjacent to the fitness center and rain-water storage tanks. A total of 5 golf cart parking spaces are provided. Recognized***

28. Is the pool area part of phase 2 or phase 4?

Response: ***The pool area is part of phase 4, refer to the phasing plan.*** ***Recognized***

29. Plant list to include size, spacing spread

Response: ***The plant list is included on the landscape plans attached.*** ***Recognized***

30. Provide signatures of all owners (partners) for the application. Mike and Lenny?

Response: ***To be provided as a separate cover and submitted as a follow up.*** ***Please confirm that the Middle Island Management & Development LLC is the sole owner of the property. If other entities or owners exist, then please amend the City's general information of the Urban Code Conditional Use Application and include in your resubmittal.***

Response II: Middle Island Management & Development LLC is the sole owner of the property.

31. Provide detailed stormwater treatment plans with a mix of dry and wet and underground storage

Response: ***Please see submitted drainage report which outlines the stormwater treatment plans.*** ***Recognized***

32. Provide a long-range future land use analysis including a maximum buildout for Marine Industrial land use compared with the existing Industrial land use designation.

Response: ***A maximum build out analysis has been completed in accordance with Comp Plan Table Element 1.A7.2. The gross site area of 471,182 sf was multiplied by 3, the applicable FAR number from Comp Plan for property with an Industrial future land use designation. Based on this calculation a total maximum square footage of 1,413,546 sf represents the maximum build out for a property with an Industrial future land use. The same calculation applies to the property if it was designated Marine Industrial future land use as the Comp Plan table applies the same FAR of 3 in CRA for both land use designations. Providing the same maximum build out for Industrial/Manufacturing/warehouse facilities. Residential analysis was applied to the Marine/Industrial land use designation with a maximum threshold of up to 25% residential based on 15 dwelling units per acre. Residential density for a property with a Marine Industrial flu – is calculated applying the maximum density allowed at 15 du/acre. Based on the 10.81 gross acreage that would be 237 units as a maximum. This calculation is made at the land use level to show maximums based on the table in the comp plan and does not factor in LDC code requirements.*** ***Recognized***

The Urban District code provides in 3.01.08 that public art (or contribution) will be required to be approved by the Community Redevelopment Board prior to issuance of building permit

33. Provide work of art on the development site provided the work is an original and must be created individually by a professional artist or team of artists. Bronze sculptures in limited editions of not more than 50 in all sizes and materials by a single artist are allowed. The value of the work of art shall not be less than one percent of the vertical construction cost of the development. The nature of the work of art shall be proposed by the developer and shall be submitted to the city's community redevelopment board which shall review the proposal for conformity with the public art standards set forth below. An approved work of art shall be incorporated into the site plan, public lobby floor plan or the landscape plan for the development as part thereof.

34. Contribute an amount equal to or greater than one percent of the vertical construction cost in lieu of providing a work of art, a developer may pay the sum of one percent of the vertical construction cost into the public art trust fund described below. Such payment shall be made prior to issuance of a building permit for any portion of the development.

Response: ***A separate application has been prepared and submitted requesting minor urbancode conditional use approval for art to the incorporated on the Atlantic Point Marina property.*** ***Please confirm that the Middle Island Management & Development LLC is the sole owner of the property. If other entities or owners exist, then please amend the City's general information of the Urban Code Conditional Use Application and include in your resubmittal. The' minor urban code conditional use application' will be considered by the board as such and have its own Resolution, separate from the 'Major Urban Code Conditional Use' Resolution and application.***

Response II: Middle Island Management & Development LLC is the sole owner of the property.

35. Provide analysis how the proposal meets the requirements of the City architectural/facade design standards as set out in LDC 6.05.02 (Commercial development Standards) and LDC 3.01.06 (Urban Code Conditional Use Requirements. See comment above for building materials, floor plan and section).

Response: ***The Boat Barn had 3.5' x 9.25' recesses in the façade but they were 120' apart which exceeds the 100' length permitted in the code. The locker storage layout has been revised to meet this requirement. In addition, the southwest storage room has been reduced 3' x 35' from the last door to corner of the building which provides a varied length of 40% the total recessed wall length. However, due to the nature of this building being a boat storage building is not feasible to make these changes on the other sides. Instead, green walls are used on each side of the boat barn building to help bring inan element of nature and soften the scale of the building.*** ***Green walls will count as an amenity provided that is over and above the LDC Ch. 6 commercial design standards, however similar to the response above, it appears from the response above that the applicant may have been reviewing the Urban Highway ("UH") code criteria. Please adjust response using 'Urban Waterfront' ("UW") urban subdistrict including E.1.d.vista, e. max cum. Façade 160, f. additional vista, etc.***

The primary façade along the street (West Elevation) includes flat metal canopies/awnings over each of the six entry doors. In addition, vertical foam applied formwork and green walls have been added

to the ground floor which account for over 50% of the ground floor. Recognized

Other design treatments used on the primary façade are overhangs at each door, sculptural waves, peaked (wave-style) mansard roof form, decorative light fixtures to illuminate the walls, and ornamental details such as the vertical foam elements and green wall. Recognized

the ship store/ dock master and yacht sales/fitness have wrap around balconies and colonnades on all facades. in addition to nautical style lighting, the design incorporates green walls, wood louvers, and arched metal roofs. these buildings are 50'x40' with 40' of green wall at the ground level on front elevations. both ends of the building have 100% wood louver coverage at the second level. Recognized

The Bar/kitchen/boh Utilizes dual-arched metal roof structure, wood louvers, and columns to break up the scale. The wood louvers are incorporated into over 40% of the front façade and provide a 6' deep transition to the main wall of the building. Recognized

Response II: The proposed buildings are proportional to the existing buildings that will be removed from the site and proportional and complimentary the adjacent surrounding buildings in the area. The boat barn has recess door alcoves and extended canopies to define the main entrances to the storage units portion of the building. The main boat barn has colored sliding doors and small canopy overhead. The main entrances for the Ship Store and Yacht Sales buildings are defined with columns that support the overhanging balcony above. In addition, the primary entrances have glass doors and side-lites. The Bar/Kitchen has a colored canopy that extends past the walls and edge of the roof which define the entrance. Benches, potted plants, flower boxes, green walls, murals, outdoor patio areas, walkaround balconies and covered porches and other amenities are included in this project.

The Boat Barn has a wave-like design that creates a natural change in the roof elevation and the other buildings have barrel-vault roof structures. The Boat Barn/Storage building includes a wavering roofline that is translated onto the primary façade with raised and colored accent bands. The roof structures vary more than two feet.

The Boat Barn has a secondary façade that projects 25' from the primary façade and is 33% of the building length (215'-8" of 645'). The Yacht Sales and Ship Store buildings are 40'x50' and have a colonnade that wraps all four facades. The columns 12"x24" columns are located 5'-8" from the primary façade and provide 5% of the coverage on the 40' sides and 10% coverage on the 50' sides. The primary façade of the Bar/Restaurant building is offset 6'near the mid-point of the building so the primary and secondary facades are both less than 50'.

Due to the design of the architecture on the boat barn with horizontal lines such as wave action and the curving roof line, breaking up the facade with windows, faux windows or shutters would impede on the aesthetics of these lines. However, planters and green wall sections are provided in the lower portion of the building facade to assist with meeting this requirement.

The Ship Store and yacht Sales building have windows at each floor level in addition to colonnades and green walls that breakup the facades as required. The Bar/Kitchen has vertical wood louvers on the main façade to mimic louvered shutters. The waterfront side has vertical wood louvers that fill the arches of the barrel-vault roof trusses and is completely open-air space with no walls or windows.

There are many vistas being provided also, including on the north and south sides to pedestrians utilizing the waterside trail. They will also be able to walk into the site on the south side and utilize the restaurant and ship store facilities that will have dramatic views of the adjacent waterway.

Engineering – Drainage/Stormwater

36. The development will incorporate measures to reduce/eliminate sheet flow from the property into the St. Lucie Estuary. Full compliance with LDC 6.03.00 (Stormwater Management) will be required at building permit.

Response: ***Acknowledged and understood.*** ***Please describe how the stormwater plan reduces an eliminates sheet flow into the estuary.***

Response II: The development proposes the use of Low-Impact Development (LID) to reduce the amount of nutrient loading and an overall reduction in stormwater discharges to the St Lucie River. Discharges from the site are reduced in the post development conditions for the 3/1, 5/1, 10/3, and 25/3 storm events. Please see the updated drainage report for further details.

37. The Site Plan and conceptual engineering plans include development outside of the property shown on the survey. Improvements are included within the right of way which appear to be for private use such as the dumpster and interconnected dry detention facilities. Improvements also extended into a triangular property owned by the City of Stuart at the SW side of the development which includes an extension of an onsite parking lot. The applicant will need to discuss the use of these properties with the City.

Response: ***The applicant is communicating with staff to address this matter.*** ***Resubmittal shall include decisions and or agreements involving the triangular piece of property and ROW owned by the City.***

Response II: The team is currently working with the City and Staff on these items.

Justification Statement

38. Update the zoning section of the table on page 1 to reflect the zoning classifications. It currently references land use designations.

Response: ***The Justification has been updated to reference the correct zoning district designations.*** ***Recognized***

39. There are several refences to drainage report, however only a drainage statement was provided, found on the conceptual engineering plan. Due to the location of this project adjacent to the River, former contamination and floodplain issues, a detailed drainage report is required for review at this time.

Response: ***Please see submitted drainage report for details on the stormwater management system.*** ***Recognized***

40. Page 13 regarding the dumpster location is good for odor and noise, however it is located in the right of way and very far from the restaurant.

On 11.16 /2021 the applicant's team worked with Marc Rogolino to coordinate the quantity of dumpsters needed and the locations are provided in the two locations as shown with the enclosures per the coordination effort. The amount of dumpsters have been increased per the

coordination effort and the truck path was discussed and approved. The trucks will not be backing,they will go around the building and cross over the flush pavement adjacent to the drop off loop and access the dumpsters head on.

Comment 1/13/22: Please clarify how passenger cars and other vehicles will be prevented from crossing over the flush pavement as well. This is a pedestrian safety concern.

Response II: Concrete banding has been added to separate and also visually separate the two different pavement types in the drop-off area.

Site Plan

41. Show vehicle path for boat trailers for pick up and drop off at the storage facility.

Response: ***Please refer to the boat trailer plan from EDC, as per attached.***

Comment 1/13/22: It is not clear in the Autoturn Exhibit labeled "Prelim Eng R2 AUTOTURN-CAR BOAT" how vehicles towing boat trailers will circulate through the site and/or turn around. Please clarify. It is also not clear how vehicles towing boat trailers and other passenger vehicles will be prevented from crossing over theflush pavement. This is a pedestrian safety concern.

Response II: Please see the updated autoturn analysis for the boat trailer. The boat trailer path will commence at the southern entrance and enter the boat barn from the south. From there the boat trailer will travel through the boat barn exiting the boat barn to the north and then off property through the access at the north of the property. There will also be signage that states no boat trailers beyond the point of the southern and northern boat barn entrances.

42. Will the restaurant have its own dumpster? The dumpster shown in the right of way is very far from the restaurant building that would use the dumpster the most.

Response: No. Retain the dumpster in the location shown and no separate provision for the restaurant. ***Recognized***

43. What size trucks will be using the loading zone at the restaurant? Show an Autoturn exhibit for deliveries to this location.

Response: An Autoturn exhibit has been completed and attached.

Comment 1/13/22: It is not clear in the Autoturn exhibits provided what size vehicle will be using the loading zone at the restaurant or how the loading zone will be used. Please clarify.

Response II: Please see updated loading truck autoturn exhibit, which provides an approximate vehicle size.

44. Show a fence or railing and the material type on top of the seawall.

*Response: Not required or applicable. **Plaza is a gathering place with potential standing crowds for events, will a temporary barrier be provided for those events?***

Response II: A fence or railing is not required and will not be provided.

45. For the parking stalls located closest to the seawall, provide wheel stops or other protection.

*Response: **The site plan and civil plans have been updated to include wheel stops for parking stalls located closest to the seawall and also revised the handicap space locations. Recognized***

46. One of the stalls around the sculpture roundabout should be designated as an ADA space.

*Response: **Those were drop off spaces and were not counted towards the parking. They have been removed from the site plan. Recognized***

47. What are the 2 rectangular boxes near the seawall east of the rainwater storage tanks?

*Response: **The two rectangular boxes near the seawall east of the rainwater storage tanks have been removed from the plans. Recognized***

Conceptual Engineering Plans

48. Provide hydrant coverage circles around the proposed fire hydrant locations so that building coverage criteria can be verified.

*Response: **Please see the updated Preliminary Utility & Drainage Plan that shows the fire hydrant coverage circles. Recognized***

49. Demonstrate that there is a fire hydrant within 100' of each FDC.

*Response: **Please see the updated Preliminary Utility & Drainage Plan that shows the dimensions between the fire hydrants and FDC's. Recognized***

50. A conceptual drainage statement is shown on the plan; however, a full drainage report is needed to further evaluate stormwater, floodplain, and any impacts the environmental cleanup may have on dry detention and underground treatment.

*Response: **Please see submitted drainage report for details on the stormwater management system. Recognized***

51. In the box at the top of the page regarding flood zone, update to show AE-5, AE-6 etc. the stages shown after don't seem to correlate to the order of the zone shown.

*Response: **The flood zone legend has been updated to show the appropriate zones and stages. Recognized***

52. The plan currently shows the extension of the existing 8" water main is labeled as a 6". This should be an 8".

Response: ***The water main extension label has been updated to signify an 8-inch water main.*** ***Recognized***

53. At the southern end of the above referenced 6" pipe, a 12" is proposed to connect to it.

Response: ***The water main label has been updated to signify an 8-inch water main. Please see the updated Preliminary Utility & Drainage Plan.*** ***Recognized***

54. At the location shown in #6 above, a cap is sown in the middle of the pavement. This should be extended to the green area with a hydrant or blowoff.

Response: ***The cap has been removed from the plans. The 8-inch water main now extends to the green area terminating with a fire hydrant.*** ***Recognized***

55. There should be another DDCV at the southern connection to the public water main, so the public main is protected from the entire private water loop.

Response II: Please see updated preliminary engineering plan which shows an additional DDCV added to the water main at the southern end of the property.

56. The 12" pipe refenced in #6 above changes to an 8" pipe on the east side of the building.

Response: ***The water main label has been updated to signify an 8-inch water main. Please see the updated Preliminary Utility & Drainage Plan.***

Response: ***According to as-builts provided by the City of Stuart, the top of the forcemain is at a depth of -0.2 NAVD and the proposed dry detention bottom is at 4.00 NAVD. The forcemain will have at least 4-feet of cover.***

Response II: The water main label has been updated to signify an 8-inch water main. Please see the updated Preliminary Utility and Drainage Plan.

57. There is an existing 4" force main under the proposed dry detention area behind the dumpster at the south end of the site. Demonstrate this force main will have adequate cover reflect it to be relocated.

Response: ***According to as-builts provided by the City of Stuart, the top of the forcemain is at a depth of -0.2 NAVD and the proposed dry detention bottom is at 4.00 NAVD. The forcemain will have at least 4-feet of cover.*** ***Recognized***

58. Are the rainwater storage tanks going to be used for irrigation?

Response: ***No, the rainwater storage tanks are to be used for washing boats prior to placement in the dry racks.*** ***Recognized***

59. Coordinate the impervious areas in the data table versus those shown on the site plan so they are consistent.

Response: ***The land use data table has been removed from the Preliminary Utility & Drainage Plan. Please see the Site Plan for the land use table.*** ***Recognized***

60. There is a pervious concrete detail shown, however it is not labeled on the plan view. Please identify its location.

Response: ***Please see the updated Preliminary Utility & Drainage Plan for labelling of the pervious concrete.*** ***Recognized***

Environmental and Landscaping

61. The proposal will ensure that existing mangroves are retained and protected during construction activities. Any trimming of mangroves will be subject to permit approval from Florida DEP. Full compliance with LDC 5.06.00 (Mangrove & Shoreline) and LDC 5.07.00 (Floodplain Management) will be required at building permit.

Response: Acknowledged and understood.

Environmental Review Comments from Shelby Oenbrink, Environmental Scientist

We have reviewed the application materials for the referenced site and compared it to the requirements in Chapter V. Resource Protection Related to Development Standards. The following is a summary of our findings. *Response:* ***An environmental assessment is attached to address this issue.*** ***See KH Memo 1.11.2022***

Response II: Acknowledged – These comments (5.01.00 through 5.10.00) are duplicated below at the bottom of the letter and please see the responses in the section at the bottom.

62. Section 5.01.00 – Avoidance and Minimization and Other Environmental Impacts – Incomplete - An Environmental Statement prepared by Terragone Engineering, LLC, dated August 25, 2021, has beensubmitted. Based on a review of this assessment, no discussion on wetlands or environmentally sensitive lands were included. Please update the environmental assessment to include this.
Response: An environmental assessment is attached to address this issue.

63. ***Section 5.02.00*** – Incomplete. Environmental Assessment Report – Incomplete – The provided Environmental Statement does discuss on-site characteristics but does not provide a site description, FLCUCFS codes or acreage, vegetation found on-site, or an on-site wildlife evaluation.

64. ***Section 03.00*** – Wetlands – Incomplete – further discussion on wetlands or surface waters on-site need to be included within the environmental statement to clarify the limits of on-site wetlands.

Response: ***An environmental assessment is attached to address this issue****.*

65. ***Section 5.04.00*** – Environmentally Sensitive Lands - Incomplete – further discussion on environmentally sensitive lands on-site need to be included within the environmental statement to clarify the presence or absence of environmentally sensitive lands.

Response: ***An environmental assessment is attached to address this issue.***

66. ***Section 5.05.00*** – Trees – See comments from landscapereview.

Response: ***Acknowledged.***

67. ***Section 5.06.00*** – Mangrove and Shoreline Protection – Incomplete – mapping or survey data needs to be provided showing the shoreline protection zone and limits of on-site mangrove habitat.

Response: ***An environmental assessment is attached to address this issue.***

68. ***Section 5.07.00*** - Floodplains and Flood Damage Prevention – The survey shows the site is within flood zones AE-5, AE-6, and VE-8. The applicant will need to design in accordance to the requirements associated with these floodplains.

Response: ***Acknowledged and understood.***

69. ***Section 5.09.00*** – Historic Preservation – Incomplete – please provide documentation that the buildings on-site to be removed are not considered historic structures.

Response: ***Chapter XII, City of Stuart LDC states a historic structure means any building identified in the City of Stuart's update to the 1991 historic property survey dated April 2003 and any subsequent amendments thereof; or any other structure which has local architectural, historical, or cultural significance that is later identified and placed within such survey, using recognized criteria for designation as "historic," including, but not limited to, structure age of 50 years or more, cultural significance, notoriety of former occupants, and architecture.***

Although the buildings were constructed in 1932, the property is not included on the 1991 historic property survey and any subsequent amendments, thereof. The effective reuse of this existing vacant industrial property will offer cultural significance, while retention of a statue on site will payhomage to the former occupants. Although not on the 1991 historic structure survey, the applicant is keeping one existing building on the north propertyline.

Traffic and Transportation

See KH Memo dated 1.13.2022 - Kimley-Horn has reviewed the Traffic Impact Analysis (dated August 30, 2021) prepared by O'Rourke Engineering & Planning related to the above-mentioned project.

Please find below our review comments pertaining to the development's impacts to adjacent transportation facilities.

70. Based on the City of Stuart's Land Development Code, any structure which has been vacant or abandoned for more than two years shall not be considered an existing use. Please verify that

the existing development has not been vacant for more than two years. If so, please remove trip generation reductions due the existing development.

Response: ***The existing uses have been in use and have had business tax receipts (licenses) . There are no uses that are in the trip generation table that have been vacant more than 2 years. The justification statement has also been modified to detail the current status of the property.***

71. Please provide internal capture worksheets so that internalization trips can be confirmed within Table 1.

Response: ***The internal capture worksheets have been appended.***

72. Please justify why an internal capture reduction was not applied within Table 1B. It appears that both Table 1 and Table 1B provided land uses that are eligible for internal capture reductions.

Response: ***The values were so low that the pairings and balancing produced no internal capture.***

73. Please include the roadway segment of Fern Street from Dixie Highway to Flagler Avenue within the study area as this segment is considered significant based upon Table 2B.

Response: ***The segment has been added. However, the capacity of Fern Street in this location will be based on the intersection operation given the length and location of the segment.***

74. Please confirm roadway segment directionality is correct within Tables 3a and 3b.

Response: ***The table directionality has been updated.***

75. Please confirm Wright Boulevard roadway segment calculations are correct within Tables 3a and 3b.

Response: ***The Wright Boulevard calculations have been updated.***

76. Based on the City of Stuart's Land Development Code, an analysis of all driveways into the project shall be performed which includes, at a minimum, projected turning movements in and out of the project during both the AM and PM peak hours. A capacity analysis of the proposed driveways shall be performed to determine the need for separate turning lanes and/or any other necessary improvement.

Response: ***The project traffic is the only traffic on the segment of Flagler Drive. The evaluation by volume thresholds was conducted. There is little to no through traffic to justify a capacity analysis.*** ***The Harborage development shares Flagler drive with shared access including Fern Ave. Please provide capacity analysis of the proposed driveways as asked for by licenced traffic engineering consultant.***

Response II: The intersection of Fern Street and Flagler Avenue was analyzed representative of the Project Driveway. It will operate at LOS A for the AM and PM peak hours. NO additional improvements are recommended to the intersection.

77. Please analyze study area intersections during 2021 existing and 2024 future background AM& PM peak hour traffic conditions.

Response: ***The intersections were analyzed for the existing, and 2024 with and without project traffic.***

78. Please utilize peak hour factors (PHF) calculated from existing turning movement counts within the HCS 7 intersection analysis. AM and PM peak hours operate with a PHF of 0.88 and 0.90, respectively.

Response: ***The PHFs were revised.*** ***Recognized***

79. Please calculate an annual growth rate based upon FDOT Florida Traffic Online AADT reports for traffic count stations along Dixie Highway, north of SE 5th Street. Although it is acceptable to use growth rates from the latest Martin County Roadway Level of Service Inventory Report, the roadway segment of Dixie Highway terminates at SE 5th Street, south of the site. Please confirm if the calculated annual growth rate is less than 1.6%.

Response: ***The growth rate was calculated to be :1.35%; 2020 was 9600 and 2016 was 9,100. Therefore, we continued with the use of 1.61%. Recognized***

Public Works:

80. Sanitation- Proposed enclosure/capacity for garbage and recycling does not meet the City of Stuart Minimum Container Standards. Enclosures/capacity for garbage and recycling must meet the City of Stuart Solid Waste and Recycling Minimum Container Standards at a two services/pick-ups per week. Additional double dumpster enclosure(s) or Vert-i-Pak compactor(s) is required. At a minimum the proposed site requires three double dumpster enclosures. Also, Current dumpster enclosure locations called-out does not allow for safe access due to excessive backing as well as blindly backing into traffic.

    NOTE: Angle/skew all dumpster/Vert-i-Pak compactor enclosures allowing a straight-on approach by the full mechanically assisted pick-up by front end loading trucks. With minimal or no backing, please insure all turning radius are adequate for sanitation truck to service dumpsters. Sanitation trucks are approx. 42 ft. in length.

Response: ***On 11/16/2021 the applicant's team worked with Mark Rogolino to coordinate the quantity of dumpsters needed and the locations are provided in the two locations as shown with the enclosures per the coordination effort. The number of dumpsters have been increased per the coordination effort and the truck path was discussed and approved. The trucks will not be backing, they will go around the building and cross over the flush pavement adjacent to the drop off loop and access the dumpsters head on.***

81. Provide an AutoTurn exhibit for review & approval.

Response: ***Please see submitted autoturn exhibit.***

82. NW Flagler Ave. Improvements- all proposed parking spaces located within the Public Rights-of-way must be either pervious concrete or asphalt.

Response: ***Parking spaces in the right-of-way are comprised of asphalt and pervious turf block. Please see the updated Preliminary Utility & Drainage Plan for details.***

Water

83. The existing fire hydrant located on NW Flagler Ave. called-out to be removed must remain along NW Flagler Ave. Relocate north (120' +/-) behind sidewalk in grassedarea.

Response: ***Please see revised Preliminary Utility & Drainage Plan for relocated fire hydrant behind the sidewalk in the grassed area.***

Response II: The fire hydrant has been relocated approximately 150' north to a grassed area. Moving the fire hydrant 120' north from its current location, resulted in the fire hydrant be placed on a slope of the detention area.

84. The proposed 6" watermain extension must be a minimum 8" diameter & located within the NW Flagler Ave ROW w/ a fire hydrant and 2" flushing hydrant (per City of Stuart Specifications) located on the south side (dead-end) of the proposed tee.

Response: ***Please see revised Preliminary Utility & Drainage Plan for the 8-inch water main along with the added fire hydrant and 2" flushing hydrant.***

Response II: The 6" water main has been upgraded to an 8" main. The water main no longer dead ends at the southern end of the property. The proposed 8" main now loops the entire property, which negates the need for a flushing hydrant. Please see the updated preliminary engineering plan for further details.

85. The proposed water meter/backflow assembly to be constructed per City of Stuart Construction Detail #32.

Response: ***Acknowledged.***

Response II: The meter backflow preventer has been updated to the City of Stuart Detail #32. Please see the updated preliminary engineering plan for the blow-up detail of this connection.

86. The proposed fire line loop/connection at the southern P.O.S. must be protected with a backflow device (DDC).

Response: ***Please see revised Preliminary Utility & Drainage Plan for the proposed DDCV.***

Response II: A DDCV has been added to the southern loop of the proposed water main.

87. The proposed fire hydrants located within the proposed site will remain privately owned/maintained. Call-out on plan set.

Response: ***Acknowledged***

Response II: A note has been added to the plans explaining that all fire hydrants within the property will be privately maintained.

88. All existing water/fire hydrant service(s) not utilized must be properly cut & capped at the main/if needed grouted in-place.

Response: ***Acknowledged***

Response II: Acknowledged

89. A RPZ (reduced pressure zone) backflow device must be included on each potable water supply line to dockage, ship store, restaurant, etc.

Response: ***Please see revised Preliminary Utility & Drainage Plan for proposed RPZ and backflow preventer to each water supply line.***

Response II: A RPZ backflow device has been added to each water supply to the docks and each building.

Sanitary sewer

90. The proposed lift station will remain privately owned /maintained. Call-out on plan set. Remove sentence w/in the "Utility Statement" Sheet 1of 2.

Response: ***Acknowledged. Please see revised Preliminary Utility & Drainage Plan***

Response II: The Utility Statement has been updated to include a sentence that the lift station will be privately maintained.

91. The existing private lift station discharge/effluent piping must be properly cut & capped at the main. /if needed grouted in-place. The existing RWGV to have an MJ Plug installed.

Response: ***Acknowledged.***

Response II: Acknowledged.

92. Will the proposed site be designed to accommodate sanitary sewer pump-out for stored boats (wet or dry)?

Response: ***Provision will be only for wet marina spaces. Dry storage will need to pump out when in the water.***

Response II: Please see the updated preliminary engineering plan for the location of sanitary sewer facilities serving the wet docks.

93. Upon an approved site plan the Utility Avail. Fees will be based onERC's.

Response: Acknowledged and understood.

Response II: Acknowledged and understood.

Fire

94. NFPA 1, 18.2.3.5.3.1 The turning radius of a fire department access road shall be as approved by the AHJ. Submit Autoturn using Stuart Fire Rescue truck specifications only. Contact mcawley@ci.stuart.fl.us for truck specifications.

Response: ***Please see the submitted Autoturn analysis for the Stuart Fire Rescue truck.***

95. NFPA 1, 18.2.3.5.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

Response: ***Please see the submitted autoturn analysis for the Stuart Fire Rescue truck.***

Engineering Analysis

To: Tom Reetz Senior
Planner
City of Stuart Development Department

From: Kevin Roberson, P.E.
Kimley-Horn and Associates, Inc.

Date: January 13, 2022

See KH Memo dated 1.13.2022 **Atlantic Point Marina – Stuart, Florida Small Scale CPA and Major Urban Code Conditional Use – 2nd Review**

Dear Mr. Reetz,

Kimley-Horn has reviewed the second submittal of the Small Scale CPA and Major Urban Code Conditional Use applications and associated documents, provided to Kimley-Horn on December 22,2021, prepared Cuozzo Planning Solutions, LLC. for the proposed Atlantic Point Marina developmentin Stuart, Florida. Please find below our review comments pertaining to the following items listed within the application:

Justification Statement

3. Page 13 regarding the dumpster location is good for odor and noise, however it is located in the right of way and very far from the restaurant.
   Response 12/3/21: On 11/16/2021 the applicant's team worked with Mark Rogolino to coordinate the quantity of dumpsters needed and the locations are provided in the two locations as shown with the enclosures per the coordination effort. The amount of dumpsters have been increased per the coordination effort and the truck path was discussed and

approved. The trucks will not be backing, they will go around the building and cross over the flush pavement adjacent to the drop off loop and access the dumpsters head on.

Comment 1/13/22: Please clarify how passenger cars and other vehicles will be prevented from crossing over the flush pavement as well. This is a pedestrian safety concern.

Response II: There will be two different pavement types with different textures to differentiate the area. Also, there will be signage stating that this is the drop off area and traffic is not to pass this point.

Site Plan

1. Show vehicle path for boat trailers for pick up and drop off at the storage facility.

Response 12/3/21: Please refer to the boat trailer plan from EDC, as per attached.

Comment 1/13/22: It is not clear in the Autoturn Exhibit labeled "Prelim Eng R2 AUTOTURN-CAR BOAT" how vehicles towing boat trailers will circulate through the site and/or turn around. Please clarify. It is also not clear how vehicles towing boat trailers and other passenger vehicles will be prevented from crossing over the flush pavement. This is a pedestrian safety concern.

Response II: Please see the updated autoturn analysis for the boat trailer. The boat trailer path will commence at the southern entrance and enter the boat barn from the south. From there the boat trailer will travel through the boat barn exiting the boat barn to the north and then off property through the access at the north of the property.

3. What size trucks will be using the loading zone at the restaurant? Show an Autoturn exhibit for deliveries to this location.

Response 12/3/21: An Autoturn exhibit has been completed and attached.

Comment 1/13/22: It is not clear in the Autoturn exhibits provided what size vehicle will be using the loading zone at the restaurant or how the loading zone will be used. Please clarify.

Response II: Please see updated loading truck autoturn exhibit, which provides an approximate vehicle size.

Drainage Report – 1st review 1/13/22

1. Executive summary page 4 of PDF – The City requires 4 storm events (Section 6.03.03.B) to be analyzed for pre vs post analysis. Update comment

Response II: Executive summary has been updated to include a note about using the 4 storm events.

2. Executive summary page 4 of PDF – update the comment regarding system recovers within 12 days. That does not apply to this project.

Response II: Executive summary has been updated to remove note about system recovery in 12 days.

3. Last paragraph under section 2 page 5 of PDF – Update the Pre-development conditions map to match these areas.

Response II: The pre development conditions map now reflects the areas in the tables from the drainage report

4. Tree Boxes on page 6 of PDF – thirteen tree boxes are stated, but only 12 are

found onthe engineering plan.

Response II: The report has been updated to signify 12 tree boxes.

5. Exfiltration trench on page 6 of PDF – 572 feet is listed but engineering plan only provides 567 feet.

Response II: Length of exfiltration trench has been updated to 572 linear feet on the Preliminary Engineering Plan.

6. Land Use tables page 8 of PDF - Update the Pre-development conditions map to match these areas, pervious and impervious areas.

Response II: The pre development conditions map has been updated to show the pervious/impervious areas for each basin.

7. Bottom of page 11 of PDF, SFWMD allows a 25% reduction for detention systems, which this project is. Please update the reference to 50% which is for retention systems.

Response II: Sentence has been corrected to show 25% for detention areas.

8. Section 3.8 Discharge rates - Update the Pre-development conditions map to match these pre-development discharge rates.

Response II: The pre development conditions map now has a section about discharges from the site for the 4 storm events.

9. Section 3.10, page 13 of PDF, add a column that Phase 2 of boat barn is FFE=7.0 perthe engineering plan. Verify if this building will also have vents and gravelfloor.

Response II: Section 3.10 of the drainage report has been updated to include the finished floor elevations. The boat barn is at a finished floor elevation of 6.00 NAVD. The boat barn will have a gravel floor and vents.

10. Section 3.11 Control Structure page 14 of PDF state weir is 2.5' by 0.5' high. The engineering plan does not provide the width – please add. Also, the engineering planshows a dimension of 1.75' high. Please update the detail or ICPR model to match.

Response II: Please see the drainage report and preliminary engineering plan for the details of the control structure. The control structure matches the ICPR inputs and plan sheet.

11. Section 3.12 Recovery Analysis page 14 of PDF – City code section 6.03.03.B requiresrecovery of the detention volume in 72 hours.

Response II: Please see Section 3.12 of the drainage report for details on the 72 hour recovery for the system.

12. Section 3.13 Dry pre-treatment page 14 of the PDF, shows a K value of 0.000365, however the 3 permeability tests in the geotechnical report average out to 0.000283.Please update the exfiltration trench calculations.

Response II: The exfiltration calcs and drainage report have been updated to show the correct infiltration constant.

13. Provide nitrogen and phosphorous removal calculations.

Response II: Please see Section 3.14 of the drainage report for details on the net improvement calculations. Net improvement is achieved in the exfiltration trenches.

14. Post development stage storage calculations page 43 of PDF – Section 6.03.01.B.b ofCity code requires exfiltration is sized for water quality volume only. Demonstrate compliance with total stage storage design.

Response II: The exfiltration volume is not used in the ICPR storm events. This storage volume is excluded from the stage storage tables.

15. Provide pre vs post development discharge results for 3 year 1 day, 5 year 1 day, 10 year3 day and 25 year 3 day events per City section 6.03.03.B

Response II: Pre vs post discharge rates for the 4 storm events have been demonstrated. Discharges in the post development conditions for all 4 storm events is reduced compared to the pre development condition.

16. Page 66 of PDF, post development analysis should use Unit hydrograph UH 323 and peaking factor of 323

Response II: Unit hydrograph 323 is now used in the post development condition.

17. Page 68 of PDF, post development stage storage does not match the data table for elevations 6.5 thru 8.0.

Response II: The stage storage tables have been updated to match. The exfiltration volume is excluded from the stage storage tables.

18. Page 78 of PDF, also provide the curve number setfor pre-development

Response II: Curve number sets have been added to the ICPR report. Please see updated drainage report.

Traffic Impact Analysis

To: Tom Reetz Senior
Planner
City of Stuart Development Department

From: Alex Memering, P.E.
Kimley-Horn and Associates, Inc.

Date: January 13, 2022

Review of Traffic Impact Analysis & Traffic Impact Analysis for LUP Amendment

1. Please provide internal capture worksheets so that internalization trips can be confirmed within Table 1.

2. Please update Table 4 to show the correct delay for existing PM peak hour traffic conditions at the intersection of Fern Street & Old Dixie Highway.

3. Please update Table 3a to include the correct directional peak project volumes for the road segment of Fern Street from Dixie Highway to Flagler Avenue.

4. Please update Tables 3a and 3b to include the appropriate roadway segmentation for Fern Street.

Traffic Impact Analysis for Land Use Plan Amendment

1. The City of Stuart Comprehensive Plan Element 1 (Future Land Use Element) Objective A7 states that the industrial FLU designation allows for manufacturing, warehousing, assembly, processing, packaging, research, or storage of products. Although limited indoor retail is allowed, shopping center does not appear to be an appropriate land use. Please utilize the most intense industrial land use code (LUC) within the ITE Trip Generation Manual, 11th Edition within Table 1.

   Response II: The land use plan analysis was rerun to show reasonable representation of the highest traffic generation that could reasonably be experienced given the submerged lands, City codes and development patterns. Retail shopping was used for the Proposed Future land use and High Cube Warehouse- sort was used for the industrial use as the worst case scenario. Additional impacts were associated with the PM peak hour and thus additional analyses were provided.

2. Per City of Stuart Comprehensive Plan Element 1 (Future Land Use Element), the maximum dwelling units per acre for Marine/Industrial is 15 dwelling units/acre. Therefore, this would allow for up to 162 dwelling units. Please update Table 2 accordingly.

   Response II: The residential scenario was removed since it did not represent the worst case scenario.

3. Please be advised that a roadway segment analysis may be required as the proposed FLU non- residential amendment will provide an increase in overall trip generation potential based upon comment #1.
   Response II: The additional analyses were provided as noted in item 1.

Environmental Memo

To: Tom Reetz, Senior Planner, City of Stuart

From: Shelby Oenbrink, Environmental Scientist Date:
January 11, 2022
Subject: Atlantic Marina – Application for Major Residential Planned Unit Development(RPUD) Amendment

An original review of the application materials for the referenced site was conducted in October 2022 and compared it to the requirements in Chapter V. Resource Protection Related to Development Standards. A response was provided by the applicant with updated documentation, including an updated Environmental Assessment. An additional review has now been conducted and the following is a summary of our findings.

Section 5.01.00 – Avoidance and Minimization and Other Environmental Impacts – Incomplete - An Environmental Statement prepared by Terragone Engineering, LLC, dated August 25, 2021, has been submitted. Based on a review of this assessment, no discussion on wetlands or environmentally sensitive lands were included. Please update the environmental assessment to include this.

- **January 2022 Update: Complete**. An updated Environmental Assessment prepared by Advanced Restoration Ecology, dated November 2021, was submitted. This review does clarify that there is no presence of wetlands or native upland habitat within the property.

– ***Response II: Mangroves are below MHWL and not on site but contiguous to it, no proposed impacts to mangroves are planned as part of this project upland retaining wall will be landward of all mangroves next to site. (Please see Mangrove Report)***

Section 5.02.00 – Incomplete. Environmental Assessment Report – Incomplete – The provided Environmental Statement does discuss on-site characteristics but does not provide a site description, FLCUCFS codes or acreage, vegetation found on-site, or an on-site wildlife evaluation.

- **January 2022 Update: Incomplete.** The updated environmental assessment does discuss FLUCFCS, however, further discussion on the on-site mangrove area is needed.

– ***Response II: Please see attached EA Maps with FLUCCS acreages and reference above mangrove response, no mangroves are on site.***

Section 5.03.00 – Wetlands – Incomplete – further discussion on wetlands or surface waters on-site need to be included within the environmental statement to clarify the limits of on-site wetlands.

- **January 2022 Update: Incomplete.** The environmental assessment states that there are no on-site wetlands outside of the shoreline protection zone, however, it does state the presence of a mangrove community within the shoreline protection zone. Mangroves are a wetland plant and are a wetland indicator. Further discussion on the mangrove area and its protection measures is needed.

– ***Response II: Mangroves are below MHWL and not on site but contiguous to it, no proposed impacts to mangroves are planned as part of this project upland retaining wall will be landward of all mangroves***

next to site. (Please see Mangrove Report)

Section 5.04.00 – Environmentally Sensitive Lands - Incomplete – further discussion on environmentally sensitive lands on-site need to be included within the environmental statement to clarify the presence or absence of environmentally sensitive lands.

- **January 2022 Update: Incomplete.** The environmental assessment discusses the presence of mangroves on the south side of the property, but further discussion is needed on the protection measures intended for this area.

Response II: Mangroves are below MHWL and not on site but contiguous to it, no proposed impacts to mangroves are planned as part of this project upland retaining wall will be landward of all mangroves next to site. (Please see Mangrove Report)

Section 5.05.00 – Trees – See comments from landscape review.

Section 5.06.00 – Mangrove and Shoreline Protection – Incomplete – mapping or survey data needs to be provided showing the shoreline protection zone and limits of on-site mangrove habitat.

- **January 2022 Update: Incomplete**. The shoreline protection zone is discussed and delineated in the updated Environmental Assessment, however, the zone does not appear to have been established by survey or included within the site plan.

Response II: Please see survey and site plan.

Section 5.07.00 - Floodplains and Flood Damage Prevention – The survey shows the site is within flood zones AE-5, AE-6, and VE-8. The applicant will need to design in accordance to the requirements associated with these floodplains.

Response II: The project site is located within FEMA flood zones AE5 and AE6. The City of Stuart Land Development Code states that finished floor elevations for buildings shall be higher than 2 feet above FEMA flood zones and/or 18-inches above adjacent road crown. The proposed minimum finished floor elevation for the project meets both of those conditions. The project site is adjacent to an infinite basin, as such, flood plain compensation is not required.

Section 5.09.00 – Historic Preservation – Incomplete – please provide documentation that the buildings on-site to be removed are not considered historic structures.

- **January 2022 Update: Complete**. Further clarification on the historic status of the on-site structures was provided within the response letter.

Section 5.10.00 – Clustering of development – please provide information on on-site native vegetation areas to determine if this section is applicable.

- **January 2022 Update: Incomplete.** More information is needed on the avoidance of the mangrove area.

– ***Response II: Mangroves are below MHWL and not on site but contiguous to it, no proposed impacts to mangroves are planned as part of this project upland retaining wall will be landward of all mangroves next to site. (Please see Mangrove Report)***

Public Works Comments

Date: 1-5-2022

To: Tom Reetz

Subject: Atlantic Point Marina Urban Code Conditional Use #Z21090002rev

In reviewing the above referenced project, this Department does not approve the submitted application. Please address the following comments:

• Sheet 1 of 2- UTILITY STATEMENT remove "the only public utility to be constructed on-site shall be a new City of Stuart wastewater lift station" The proposed onsite lift station will be designed, permitted, constructed, privately owned & maintained at no cost to the City.

Response II: The utility Statement has been updated.

• NW Flagler Ave. Improvements- The proposed turf block permeable pavers are not an approved stable material. All proposed parking spaces located within the NW Flagler Ave. Public Rights-of-way must be either pervious concrete or asphalt.

Response II: Off Site parking has been updated to pervious concrete. Permeable pavers in the right-of-way has been removed from the plans.

Water-

• The proposed 8" watermain extension must be located within the NW Flagler Ave ROW w/ a fire hydrant (City of Stuart to own) and 2" flushing hydrant (per City of Stuart Specifications) located on the south side (dead-end) of the proposed tee.

Response II: The water main extension from the existing fire hydrant is located within the right-of-way.

• The proposed fire line loop/connection at the southern P.O.S. must be protected with an 8-inch backflow prevention device (DDC). Call-out not depicted.

Response II: A DDCV has been added to the southern loop of the proposed water main

• A RPZ (reduced pressure zone) backflow device must be included on each/all

potable water supply lines to docks, ship store, restaurant, etc. Note: revised plans call-out RPZ's to be installed on dedicated fire supply main.

Response II: A RPZ has been added to each water supply to the buildings and docks

- All proposed water infrastructure (mains, fire hydrants, meter assemblies, backflow devices, etc.)within and/or adjacent to the NW Flagler Ave.

Rights-of-Way must be constructed, FDEP certified, accepted by the City of Stuart and in-service by the completion of Phase-1.

Response II: Acknowledged

- Sanitation-

The south double dumpster encl. cannot be constructed over/atop of existing City of Stuart Utility infrastructure. Dumpster enclosure locations must allow for safe access with minimal backing as well as not blindly backing into traffic.

NOTE: Please insure all turning radius are adequate for sanitation truck to service dumpsters. Sanitation trucks are approx. 42 ft. in length.

Response II: The south double dumpster has been relocated so that it does not sit over the forcemain. Please see updated preliminary engineering plan and sanitation truck autoturn.

- Provide an AutoTurn exhibit depicting the proposed truck route to be utilized until the completion of Phase 2. The sanitation truck will not enter the proposed boat barn as depicted on the submitted Auto-Turn dated Aug. 21, 2021.

Response II: Please see updated sanitation truck autoturn.

Sanitary sewer-

- Depending on site design to accommodate sanitary sewer pump-out for boats a metering device may be required for sewage pump outs.

Response II: Acknowledged.

All construction pertinent to this Department shall be installed, inspected and tested in accordance with the City of Stuart Minimum Design and Construction Standards latest edition and the City of Stuart Specifications and Ordinances where applicable. In case of discrepancies between the construction plans and afore mentioned manuals, the most restrictive shall apply.

Response II: Acknowledged.

All plans to be reviewed by this Department shall be routed through the Permit Technician in the Development Department. Approval by this department shall not be construed to be a license to proceed with work and shall not be construed as authority to violate, cancel, alter or set aside any of the provisions of the City Code. Approval shall not prevent this department from thereafter requiring a correction of errors in plans, construction or violation of City Code.

Response II: Acknowledged.

Please forward comments to applicant. If there are any questions, please contact me at your earliest convenience at (772) 221-4700

Response II: Acknowledged.

Fire Comments

04 13:42:07 01/04/2022 mcawley

Dead end at southern most parking lot comment not addressed.

Show how fire hydrants comply with NFPA 1, 18.5.3 Fire hydrants shall be provided for buildings other than detached one- and two-family dwellings in accordance with both of the following: (2) The maximum distance between fire hydrants shall not exceed 500 ft (152 m).NFPA 1, 18.5.1.4 The distances specified in Section 18.5 shall be measured along fire department access roads in accordance with 18.2.3.

Response II: The dead end at the southern most parking lot no longer exists. The water main has been looped. Please see updated preliminary engineering plan. Please see updated preliminary engineering plan which shows the fire hydrant coverage circles for the project.

Pavers in the fire access lane shall comply with NFPA 1, 18.2.3.5.2 Fire department access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with an all-weather driving surface.

Response II: Acknowledged

CRA Comments

2022-01-11 15:49:54 01/11/2022 pgandhi

The REDA agreement draft was reviewed by the applicant. It will be processed with the site plan approval process.

Response II: Acknowledged

FLU Checklist

Item	Criteria	Note
Topography	Condition/Sloping?	Refer to EDC submission 0 to 2 percent slopes
Wetlands	National Wetlands Inventory https://www.fws.gov/wetlands/data/mapper.html	As per Environmental Assessment Report by Drew Gatewood confirms this. "There are no State or Federally jurisdictional wetlands on the site as the site's characteristics do not meet the minimum thresholds required for wetland classification"
Strategic Habitat Conservation Area	Florida Fish and Wildlife Conservation Commission's Strategic Habitat Conservation Area Map (layer on City GIS)	Gatewood confirms this in the EA. " Gopher Tortoise burrows were not observed on site, neither were any other State or Federally listed species observed on the property during the site visit. "
Wellfield Protection	Layer on City GIS	Refer to EDC submission No wells within 300 ft from to site.
Soils	Layer on City GIS (SSURGO)	Gatewood confirms this in the EA. "The soil consists of fill material that were excavated and spread over the surface of wet mineral soils."

FEMA Flood Plain	FEMA's National Flood Hazard Layer https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd	EDC to follow up with staff AE Combined riverine and coastal floodplain.

Water/Sewer Availability	City or County?	Refer to EDC submission City of Stuart.
Traffic LOS	https://www.martin.fl.us/resources/2019-roadway-los-inventory-report	Refer to Traffic Report
Job Creation	Estimate for number of marina employees is 27, working various shifts with 9 to 12 staff per shift. An additional 27 employees for the restaurant & bar, working similar shifts with 9 to 12 staff per shift and bringing the total number of employees to 54.	As per submission
Urban Sprawl		The proposal will not lead to urban sprawl. The property is located within the heart of CRA and downtown area. Existing infrastructure including utilities, roads, emergency services, communications, and proximity to an established mix of uses, within an urban area, addresses the question of urban sprawl. In addition, the effective reuse of an existing brownfield Property.

Maximum Buildout	Comp Plan Density comparison ***A long-range future land use analysis including a maximum buildout for Marine Industrial land use compared to the existing Industrial land use designation is as follows.*** *Response:* ***A maximum build out analysis has been completed in accordance with Comp Plan Table Element 1.A7.2. The gross site area of 471,182 sf was multiplied by 3, the applicable FAR number from Comp Plan for property with an Industrial future land use designation. Based on this calculation a total maximum square footage of 1,413,546 sf represents the maximum build out for a property with an Industrial future land use. The same calculation applies to the property if it was designated Marine Industrial future land use as the Comp Plan table applies the same FAR of 3 in CRA for both land use designations. Providing the same maximum build out for Industrial/Manufacturing/warehouse facilities. Residential analysis was applied to the Marine/Industrial land use designation with a maximum threshold of up to 25% residential based on 15 dwelling units per acre. Residential density for a property with a Marine Industrial flu – is calculated applying the maximum density allowed at 15 du/acre. Based on the 10.81 gross acreage that would be 237 units as a maximum. This calculation is made at the land use level to show maximums based on the table in the comp plan and does not factor in LDC code requirements.*** *All of these calculations and analysis have been based on the Comp Plan and FAR. It is understood and acknowledged that further zoning constraints in the LDC will reduce maximum floor space through such factors as stormwater, parking requirements, landscaping, etc.*	Also addressed in cover letter in response to Planning review comments. In accordance with Comp Plan Table Element 1.A7.2. the gross site area of 471,182 sf multiplied by an FAR of 3 determines the maximum buildout for property with an Industrial or Marine Industrial FLU in the CRA to be 1,413,546 sf. This calculation would further change when factoring LDC requirements for site design.
Maximum Building Height	**Objective A5. - Residential development.** 1. Comprehensive Plan 2. Element I - FUTURE LAND USE ELEMENT Goals, Objectives, and Policies City of Stuart, Florida Adopted December 2001 (effective April 2002) and October 14, 2002 3. GOAL STATEMENT A 4. Policy A5.6. The City shall maintain a height limitation of the greater of 45 feet or *four stories* of occupiable space for all buildings.	

Maximum Building Height (LDR)	*Land Development Code Chapter 12 Definitions* *Building height* means the vertical distance from grade to the highest finished roof surface of a flat roof or to the mean level between eaves and ridge for gable, hip, or gambrel roofs. (Ord. No. 1841-02, § 2, 6-10-02; Ord. No. 1979-04, § 1, 6-28-04; Ord. No. 2145-07, § 4, 11-26-07) *Building height* means the vertical distance measured from the lowest permissible finished first-floor elevation to the surface of a flat roof and to the eave of a pitched roof. The peak of a pitched roof may not exceed 15 feet above the maximum building height. A parapet wall shall not be counted in the calculation of building height (as referenced in chapter 3).	The boat barn for dry storage is 45 feet from finish floor to the bottom of Mansard Roof. The total height of the building will not exceed 60 feet N.A.V.D.

CITY OF STUART, FLORIDA
DEVELOPMENT DEPARTMENT
SMALL SCALE COMP PLAN AMENDMENT APPLICATION

Reviewed By: _____

Application must be legible with all relevant fields completed.

Project ID# Z2109000

(Staff Entry)

Pre-App Conference Date: July 2021	Application Date: August 27, 2021
Project Name: Atlantic Point Marina	
Parcel ID# 32-37-41-004-020-0011	Project Address: 75 NW Flagler Avenue Stuart FL 34994
Zoning/CRA Sub-district: Industrial zoning within City of Stuart CRA	
Subdivision: 20500 Dixie N of Roosevelt Bridge	Lot(s):

Fee: $1792.00 *(this does not include fees that may be charged as a result of application review by the City's consultants or any required recording fees)*

Submittal Requirements: A completed application form, the payment of fees, one (1) copy of all documents on a PDF formatted disc electronically signed and sealed, and a justification for the proposed change and any other information required by the City Development Director.

Approving Authority: The Development Director is required to prepare a staff report and recommendation concerning this application. The Local Planning Agency (LPA) is required to hold an advertised public hearing and formulate a recommendation to the City Commission. The City Commission is also required to hold an advertised public hearing after which it may approve, approve with conditions, or deny the application.

Justification: Please explain the need and justification of the change and the relationship of the proposed change to the goals, objectives and policies of the City of Stuart Comprehensive Plan and Land Development Code *(include additional pages if needed).*

Refer to the attached

(over)

General Information
(Please Print or Type)

1. Property Owner, Lessee, Contract Purchaser, or Applicant (circle one):

Name: Middle Island Management & Development LLC	City/State/Zip Code: Stuart, FL, 34994
Title: Agent: Jeffrey Hardin	Telephone Number:
Company: Middle Island Management & Development LLC	Facsimile Number:
Company Address: 75 NW Flagler Avenue	Email Address (optional):

2. Agent of Record (if any): The following individual is designated as the Agent of Record for the property owner, lessee, or contract purchaser and should receive all correspondence related to the application review.

Name: Donald J. Cuozzo	City/State/Zip Code: Stuart, Florida 34995
Title: President	Telephone Number: 772 485 1600
Company: Cuozzo Planning Solutions, Inc.	Facsimile Number:
Company Address: P.O. Box 1939	Email Address (optional): dcuozzo@cdgplan.com

3. The Undersigned, as the Property Owner, Lessee, Contract Purchaser, or Applicant (circle one), acknowledges responsibility for all City expenses associated with the referenced application (s) including time spent by the City's consultants and further acknowledges that payment of consultant fees will be made prior to the receipt of the consultant comments.

Name: Middle Island Management & Development LLC	City/State/Zip Code: Stuart, FL, 34994
Title: Agent: Jeffrey Hardin	Telephone Number:
Company: Middle Island Management & Development LLC	Facsimile Number:
Company Address: 75 NW Flagler Avenue	Email Address (optional):

I hereby certify that all information contained herein is true and correct.

4. Signed this 27 day of August, 2021.

Jeffrey Hardin
Signature of Property Owner, Lessee, Contract Purchaser or Applicant (circle one)

State of Florida, Martin County The foregoing instrument was acknowledged before me on this 27 day of August, 2021 by Jeffrey Hardin who is personally known to me, or who has produced _____ as identification and who did/did not take an oath.

Allison Bauer
Notary Signature

Commission expires:

NOTARY PUBLIC STATE OF FLORIDA
ALLISON BAUER
Commission # HH 027650
Expires August 4, 2024
Bonded Thru Budget Notary Services

TR

Cuozzo Planning Solutions, LLC

Donald J.Cuozzo
p.o. box 1939 - stuart, fl 34995
cell: 772.485.1600 - office: 772.221.2128

Hand Delivery

Kev Freeman
Development Director
City of Stuart
121 SW Flagler Avenue
Stuart, FL
34994

August 30, 2021

RE: Atlantic Point Marina – Small-scale CPA & Major Urban Code Conditional Use proposal

Dear Kev,

On behalf of the applicant as owner, Middle Island Management & Development, LLC, we are writing to request approval of a proposed restaurant, ship store, boat barn, boat slips, and associated marina uses on property previously used as an outboard test center facility.

The property is located at 75 NW Flagler Avenue, Stuart, Florida, identified as PCN 32-37-41-004-020-0011, adjacent to the St. Lucie River, parallel to NW Flagler Avenue, North Dixie Highway, and the FEC railway tracks. The parcel site is approximately 10.81 +/- acres with dry land area consisting of 7.86 +/- acres, the proposal site including 7.0-acres, and a right of way donation of 0.86-+/- acres, located west of SE Federal Highway in an urban area of on the south-eastern edge of jurisdictional limits of the City of Stuart.

Currently the property accommodates a large former boat storage warehouse facility and a covered commercial canopy building built dating back to the 1930's and 1960's. The facilities were built and utilized as the Ralph Evinrude outboard test center, constructed to field test in saltwater Evinrude, Johnson, and OMC Motors. The property was later purchased and utilized by Bombardier Recreational Products of Quebec. The latter company has recently sold the property to the current owner and applicant, Middle Island Management & Development, LLC. The intent of the applicant and property owner, Middle Island Management & Development, LLC, is to introduce an effective and economically viable reuse as a water based marina facility, utilizing access to the St. Lucie River in the heart of the city.

The current future land use on the property is Industrial and the zoning district designation is Industrial for property located within the City of Stuart Community Redevelopment Area. Although the property does not have an urban code district designation, any future development of the site is governed by the provisions of the Urban Code. To accommodate the demolition, clearance, and redevelopment of the property as a phased project including a proposed restaurant, boat barn/warehouse, boat slips, ship store, and supporting parking, infrastructure, and recreational facilities, multiple approvals are required to be considered and approved by the City of Stuart. The request includes a phased project including:

a) a small scale comprehensive plan amendment to change the future land use designation from Industrial to Marine/Industrial to accommodate the restaurant elements of the proposed use;
b) redevelopment of the property under the current Industrial zoning designation and request urban code conditional use approval for those code provisions and design elements requiring consideration beyond the Industrial zoning district provisions;
c) a major urban code conditional use application to accommodate the proposed Atlantic Point Marina; and
d) a minor urban code conditional use application to approve a unique lighthouse art and architectural feature will be submitted as a separate application.

The application packet attached is consistent with the attached checklist detailing materials required to be submitted for review of such requests. One set of all materials are included with a check for $3,328, as a total for the consideration of concurrent applications, with fees broken down to include $1,792 Small Scale CPA Land Use Amendment application fee and a $1536.00 Major Urban Code Conditional Use application fee.

The project will be constructed in four phases in accordance with the enclosed site plan detailing design, layout, and scale including:

- Phase 1 – Restaurant facility, a ship store, and supporting infrastructure including parking, access and a turning circle facility;
- Phase 2 – A large boat barn with additional parking and supporting infrastructure;
- Phase 3 – Marina boat slips, including dry rack spaces and additional parking and supporting infrastructure; and
- Phase 4 – Recreational pool provision.

A separate narrative and justification statement is also attached to demonstrate compliance with the Comprehensive Plan and the City's Land Development Code.

Should you require any additional information please do not hesitate to call.

Sincerely,

Donald J. Cuozzo
President
Cuozzo Planning Solutions, LLC
772 485 1600

Atlantic Point Marina CHECKLIST CPA Land Use Map Change Major Urban Code Conditional Use – Site Plan/Project	
Documents	**Provided**
Application fees Small Scale Comp Plan Amendment $1,792 Small Scale CPA Land Use Amendment application fee Land Use Change from Industrial to Marine/Industrial plus, any external consultant fees and advertising costs Major Urban Code Conditional Use $1536.00 Major Urban Code Conditional Use Conditional use for development standards plus, any external consultant fees and advertising costs. Retain Industrial zoning and request not met as straight zoning.	√ √
1. Cover Letter	√
2. Checklist	√
3. Application form Small Scale CPA Land Use 4. Application form Major Urban Code Conditional Use	√
5. Client Authorization Letter	√
6. Justification Statement	√
7. Deeds	√
8. Sunbiz report	√
9. Maps including location Plan (zoning, FLU of site and surrounding property)	√
10.Site Survey & Legal description	√
11. Site Plan	√
12. Landscape Plan	√
13. Conceptual Stormwater Plan & Drainage Statement	√
a. Proposed Elevations and Grades	√

b. Stormwater flows	√
c. Erosion and Sedimentation Plan	√
d. Grading Plans	√
e. Stormwater Calculations	√
14. Architectural Elevations	√
15. Architectural Renderings	√
16. Floor plans/building layouts	√
17. Utility Plan (Water and Sewer)	√
18. Traffic Statement	√
19. Environmental Plan (Soils, hydrology, flood plain elevation)	√
20. Environmental Statement	√
21. Lighting Plan	To be provided later
22. Auto Turn (Fire and Public Works access)	To be provided later at Site Permit Stage
23. Signage locations	To be provided later as unified signage plan at site permit stage.

O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS
for
LAND USE PLAN AMENDMENT

for

Atlantic Point Marina

Prepared for:

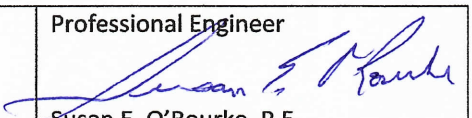
Straticon Construction – Marine Division
451 SW Federal Highway
Stuart, FL 34994

Prepared by:

O'Rourke Engineering & Planning
22 SE Seminole Street
Stuart, Florida 34994
772-781-7918

December 2, 2021
Revised February 24, 2022

MR21072.0

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole Street Stuart, Florida 34994 772-781-7918	Professional Engineer  Susan E. O'Rourke, P.E. Date signed and sealed: 2/24/2022 License #: 42684

O'ROURKE
ENGINEERING & PLANNING

December 2, 2021

Mr. Dan Moore
Straticon Construction – Marine Division
451 SW Federal Highway
Stuart, FL 34994

Re: Atlantic Point Marina

Dear Mr. Moore:

O'Rourke Engineering & Planning has completed the analysis of the Land Use Plan Amendment for the proposed development to change the land use on 10.82 acres from Industrial to Marine Industrial in Stuart, Florida. The steps in the analysis and the ensuing results are presented herein.

It has been a pleasure working with you, if you have any questions or comments, please do not hesitate to contact our office.

It has been a pleasure working with you. If you have any questions or comments, please give me a call.

Respectfully submitted,

O'Rourke Engineering & Planning

Susan E. O'Rourke, P.E.
Registered Civil Engineer

Atlantic Point Marina LUPA 2.24.2022

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ATTACHMENTS

ATTACHMENT A: Data Sources

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a land use amendment traffic analysis for the proposed Resort and Marina to be located east of Flagler Avenue in Stuart, Florida. The project location is shown in **Figure 1,** along with roadway features.

The land use change is proposed to address specific needs of the marina project proposed for the site. For traffic purposes, the proposed marina project and restaurant does not represent the worst-case scenario for traffic generators. This analysis relies on the highest generator on the maximum allowable square footage.

LAND USE PLAN AMENDMENT

The current future land use is Marine Industrial use. The code allows for an FAR of 3.0. However, based on the buildable land area of 7.0 acres, the other restrictions in the code and standard development patterns result in an FAR of 0.5. There are many uses allowed within this land use but the worst case is High Cube Warehouse - Sort. Retail is not permitted as a primary use. Therefore, ITE Land Use Code 155 was used as a worst-case trip generation for the existing future land use.

The proposed future land use is Marine Industrial. The highest allowable use is LU 820 - Commercial Retail. The trip generation for the proposed future land use was retail shopping center. Retail use could not achieve an FAR of 3.0 based on typical uses and the code requirements. An FAR of 0.25 was used, resulting in 76,230 of retail. Residential use is also allowed in Marine Industrial, but that does not represent worst case.

Table 1 provides the comparison of the trip generation for the existing future land use as retail versus the proposed future land use as industrial. As shown, the AM peak hour would have fewer trips in the proposed condition and the PM peak hour would have 76 more peak hour trips.

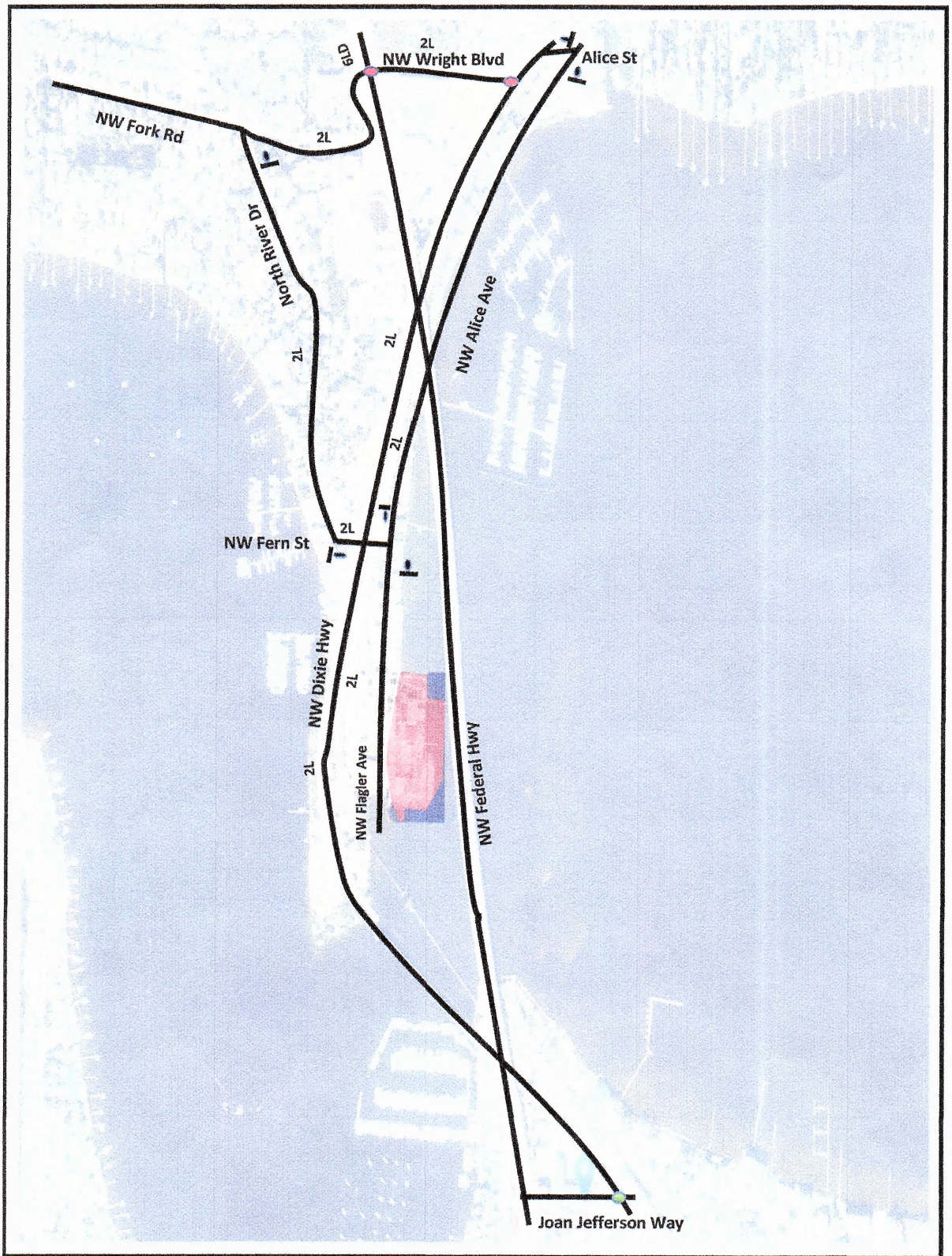
LINK ANALYSIS

The land use plan analysis requires a five-year and a long-range analysis. **Tables 2a and 2b** summarize the five-year impacts for the AM and PM peak hours where the project traffic is treated as new. **Table 3** summarizes the 2040/2045 for the PM only. The long range evaluates only the incremental change between the existing and proposed future and use scenario.

Data sources are included in **Attachment A.**

CONCLUSION

As shown, the traffic impacts associated with the proposed future land use will not create the need for changes to the network. The land use will not have an adverse impact the on the overall circulation element.



N O'ROURKE NTS 22 SE Seminole St Stuart, Fl 34994 Job #: MR21072.0 Date: 8/23/2021	Legend = Signalized = Project Location = Round About = Stop Sign	Figure 1 Project Location Atlantic Point Marina

Table 1 - Trip Generation

Table 1a: Daily

	Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
						In	Out	In	Out	Total
Proposed Future Land Use	Shopping Center (FAR = 0.25)	820	76,230	Sft	T = 37.01(X)	50%	50%	1,411	1,410	2,821
Existing Future Land Use	High-Cube Fulfillment Center Warehouse - Sort (FAR = 0.50)	155	152,460	Sft	T = 6.44(X)	50%	50%	491	491	982
TOTALS (Proposed - Existing)								**920**	**919**	**1,839**

Source: ITE 11th Edition Trip Generation Rates

Table 1b: AM Peak Hour

	Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
						In	Out	In	Out	Total
Proposed Future Land Use	Shopping Center (FAR = 0.25)	820	76,230	Sft	T = 0.84(X)	62%	38%	40	24	64
Existing Future Land Use	High-Cube Fulfillment Center Warehouse - Sort (FAR = 0.50)	155	152,460	Sft	T = 0.87(X)	81%	19%	108	25	133
TOTALS (Proposed - Existing)								**-68**	**-1**	**-69**

Source: ITE 11th Edition Trip Generation Rates

Table 1c: PM Peak Hour

	Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
						In	Out	In	Out	Total
Proposed Future Land Use	Shopping Center (FAR = 0.25)	820	76,230	Sft	T = 3.40(X)	48%	52%	124	135	259
Existing Future Land Use	High-Cube Fulfillment Center Warehouse - Sort (FAR = 0.50)	155	152,460	Sft	T = 1.20(X)	39%	61%	71	112	183
TOTALS (Proposed - Existing)								**53**	**23**	**76**

Source: ITE 11th Edition Trip Generation Rates

Table 2a: Link Analysis - AM Peak Hour Five Year Analysis

Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	D Factor	2021 Volume Peak Hour Peak Direction[2]	Growth Rate	Committed Trips	2027 Volume Peak Hour Peak Direction	LOS D Directional Peak Hour[1]	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Dixie Hwy	Joan Jefferson	Fern Street	NB	IN	2L	no	0.332	147	1.016	12	176	880	18	45%	2.05%	194	Yes
	Joan Jefferson	Fern Street	SB	OUT	2L	no	0.668	296	1.016	14	345	880	11	45%	1.25%	356	Yes
	Fern St	Wright Blvd	NB	OUT	2L	no	0.332	147	1.016	12	176	880	10	40%	1.14%	186	Yes
	Fern St	Wright Blvd	SB	IN	2L	no	0.668	296	1.016	10	341	880	16	40%	1.82%	357	Yes
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	yes	0.681	49	1.016	0	54	675	24	100%	3.56%	78	Yes
	Fern St	Project Driveway	SB	IN	2L	yes	0.319	23	1.016	0	25	675	40	100%	5.93%	65	Yes
	Fern St	Alice	NB	OUT	2L	no	0.681	49	1.016	21	75	675	2	10%	0.30%	77	Yes
	Fern St	Alice	SB	IN	2L	no	0.319	23	1.016	22	47	675	4	10%	0.59%	51	Yes
Fern Street	Dixie	Alice	EB	IN	2L	no	0.681	49	1.016	21	75	750	36	90%	4.80%	111	Yes
	Dixie	Alice	WB	OUT	2L	no	0.319	23	1.016	22	47	750	22	90%	2.93%	69	Yes

(1) 2020 FDOT Quality Level of Service Handbook Tables

(2) From Turning Movement Counts on: 8/11/2021, except Dixie which are from Counts in July 2020, they are grown 9 years

(3) Martin County 2019 Level of Service Inventory Report

In: 40
Out: 24
Years Grown: 6

Table 2b: Link Analysis - PM Peak Hour- Five Year Analysis

Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	D Factor	2021 Volume Peak Hour Peak Direction[2]	Growth Rate	Committed Trips	2024 Volume Peak Hour Peak Direction	LOS D Directional Peak Hour[1]	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Dixie Highway	Joan Jefferson	Fern Street	NB	IN	2L	no	0.698	416	1.016	13	478	880	25	20%	2.84%	503	Yes
	Joan Jefferson	Fern Street	SB	OUT	2L	no	0.302	180	1.016	15	216	880	5	20%	0.57%	221	Yes
	Fern St	Wright Blvd	NB	OUT	2L	no	0.698	416	1.016	13	478	880	11	45%	1.25%	489	Yes
	Fern St	Wright Blvd	SB	IN	2L	no	0.302	180	1.016	11	212	880	18	45%	2.05%	230	Yes
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	no	0.350	28	1.016	0	31	675	33	100%	4.89%	64	Yes
	Fern St	Project Driveway	SB	IN	2L	yes	0.650	52	1.016	0	57	675	52	100%	7.70%	109	Yes
	Fern St	Alice	NB	OUT	2L	no	0.350	28	1.016	27	58	675	3	10%	0.44%	61	Yes
	Fern St	Alice	SB	IN	2L	no	0.650	52	1.016	19	76	675	5	10%	0.74%	81	Yes
Fern Street	Dixe	Alice	EB	IN	2L	no	0.350	28	1.016	27	58	750	112	90%	14.88%	170	Yes
	Dixie	Alice	WB	OUT	2L	no	0.650	52	1.016	19	76	750	122	90%	16.20%	198	Yes

(1) 2020 FDOT Quality Level of Service Handbook Tables

(2) From Turning Movement Counts on: 8/11/2021, except Dixie which is July 2020, grown 7 years for 2027 values

3) Martin County 2019 Level of Service Inventory Report

In: 124
Out: 135
Years Grown: 6

Table 3: Link Analysis - PM Peak Hour- Long Range Analysis

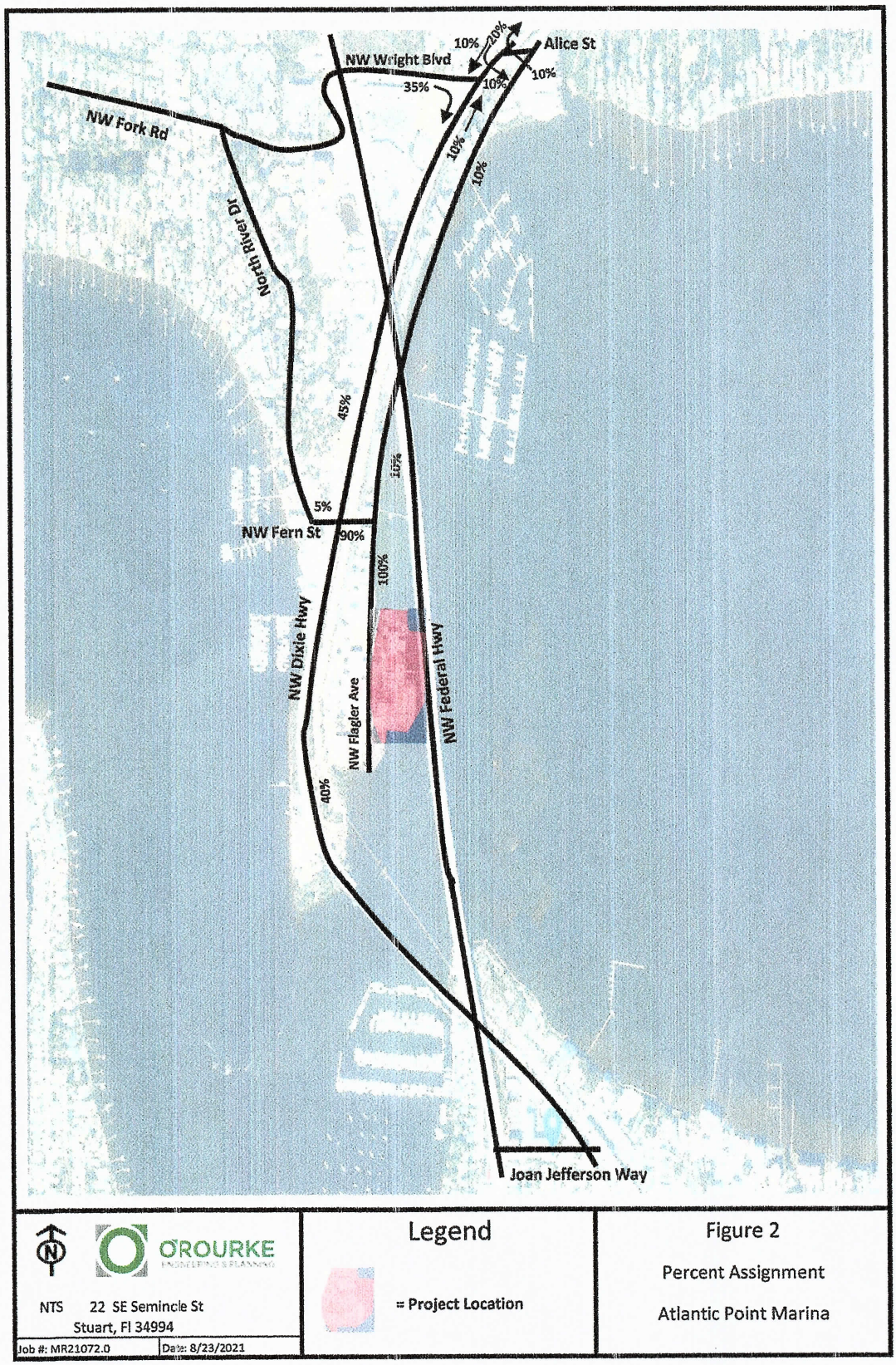
Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	2021 Peak Hour Volume	D Factor	2040/45 Volume Peak(2) Hour Peak Direction	Growth Rate	Committed Trips	LOS D Directional Peak Hour(1)	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	no	28	0.350	41	1.016	0	675	33	100%	4.89%	74	Yes
	Fern St	Project Driveway	SB	IN	2L	yes	52	0.650	76	1.016	0	675	52	100%	7.70%	128	Yes
	Fern St	Alice	NB	OUT	2L	no	28	0.350	41	1.016	27	675	3	10%	0.44%	71	Yes
	Fern St	Alice	SB	IN	2L	no	52	0.650	76	1.016	19	675	5	10%	0.74%	100	Yes
Fern Street	Dixe	Alice	EB	IN	2L	no	28	0.350	41	1.016	27	750	48	90%	6.36%	116	Yes
	Dixie	Alice	WB	OUT	2L	no	52	0.650	76	1.016	19	750	21	90%	2.76%	116	Yes

(1) 2020 FDOT Quality Level of Service Handbook Tables
(2) From Turning Movement Counts on: 8/11/2021
3) Martin County 2019 Level of Service Inventory Report
4) 2040 LRTP volumes for Dixie, 2045 not available, Fern and Flagler , growth rate applied 24 years

Net Trips PFLU-EFLU	
In:	53
Out:	23
Years Grown:	24

ATTACHMENT A

Data Sources



N O'ROURKE NTS 22 SE Semincle St Stuart, Fl 34994 Job #: MR21072.0 Date: 8/23/2021	Legend = Project Location	Figure 2 Percent Assignment Atlantic Point Marina

Martin County 2019 Roadway Level of Service Inventory Report

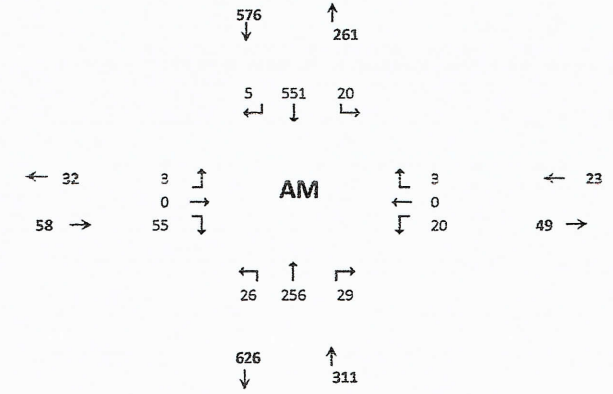
Road Name	From	To	Type	Generalized Service Capacity	2019 Average Annual Daily Traffic	2019 Peak Hour Directional Volume	2019 Generalized LOS	Avg. Annual Growth Rate
CR-714 (Veteran's Memorial Bridge)	Mapp Rd	SR-76	Class I: 4-Ln Divided	2000	23,957	1,622	C	6.1%
CR-723 (Savanna Rd)	CR-707	NE 24th St	Class I: 2-Ln Undivided	880	9,135	384	C	0.5%
CR-723 (Savanna Rd)	NE 24th St	CR-707A (Jensen Beach Blvd.)	Class I: 2-Ln Undivided	880	9,631	471	C	1.0%
CR-726 (Citrus Blvd)	SR-710	Greenridge Ln	Uninterrupted Rural Hwy: 2-Ln Undivided	740	2,783	126	A/B	0.5%
CR-726 (Citrus Blvd)	Greenridge Ln	CR-76A	Uninterrupted Rural Hwy: 2-Ln Undivided	740	2,488	137	A/B	0.5%
CR-76A (Citrus Blvd.)	CR-726	SR-714	Transitional 2-Ln Uninter /Undivided Flow	1200	4,269	283	A/B	8.0%
CR-76A (SW 96th St)	CR-726	Pennsylvania Ave	Transitional 2-Ln Uninter /Undivided Flow	1200	3,845	195	A/B	8.0%
CR-76A (SW 96th St)	Pennsylvania Ave	SR-76	Class I: Transitional 2-Ln Undivided	800	8,086	492	C	2.5%
CR-A1A (Dixie Hwy)	SR-5	CR-708	Class II: 2-Ln Undivided	750	3,416	192	C	4.7%
CR-A1A (Dixie Hwy)	CR-708	Osprey St	Class I: 2-Ln Undivided	880	7,552	477	C	3.7%
CR-A1A (Dixie Hwy)	Osprey St	Heritage Blvd	2-Ln Uninter /Undivided Flow	1190	6,595	393	A/B	3.1%
CR-A1A (Dixie Hwy)	Heritage Blvd	Cove Rd	2-Ln Uninter /Undivided Flow	1190	7,147	346	A/B	2.9%
CR-A1A (Dixie Hwy)	Cove Rd	Salerno Rd	Class II: 2-Ln Divided	790	12,131	617	D	3.1%
CR-A1A (Dixie Hwy)	Salerno Rd	St. Lucie Blvd	Class II: 2-Ln Undivided	750	17,261	835	F	3.3%
CR-A1A (Dixie Hwy)	St Lucie Blvd	Jefferson St	Class II: 2-Ln Undivided	750	14,108	748	D	2.9%
CR-A1A (Dixie Hwy)	Jefferson St	Indian St	Class II: 4-Ln Divided	1630	18,389	848	D	2.2%
CR-A1A (Dixie Hwy)	Indian St	SR-714	Class I: 4-Ln Divided	2000	17,161	824	C	3.1%
CR-A1A (Dixie Hwy)	SR-714	SE Fifth St	2-Ln Undivided Non-State	675	6,710	346	D	1.6%
Farm Rd	Dr Martin Luther King Jr Dr	Palm Wy	Class II: 2-Ln Undivided	750	2,817	124	C	3.2%
Fox Brown Rd	SR-710	CR-714	Uninterrupted Rural Hwy: 2-Ln Undivided	740	347	16	A/B	0.0%
Goldenrod Rd	Britt Rd	SR-732	Class II: 4-Ln Divided	1630	4,810	278	A/B	0.5%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB) and Murphy Rd (PM/NB).

TURNING MOVEMENT VOLUME COUNTS

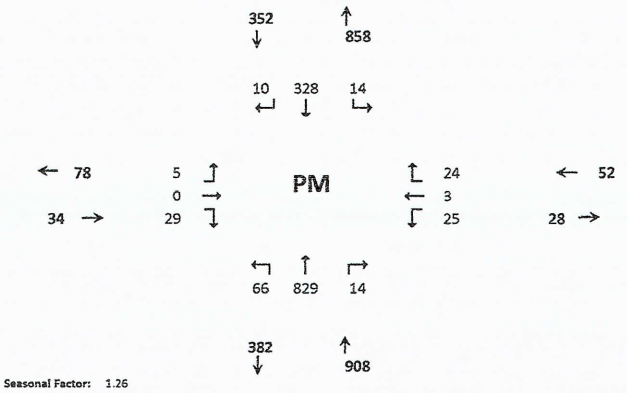
N/S STREET: Dixie Hwy
E/W STREET: Fern St
CONTROL:
FILENAME: Sportfish Marina
COUNT DATE: 8/11/2021
DAY: Wednesday
CITY: Stuart
INTERSECTION:
REPORT DATE:
ANALYSIS YEAR:

15 Min Period	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15	3	41	3	2	90	1	0	0	10	2	0	1	153	715
7:15-7:30	3	52	5	2	94	0	1	1	5	9	1	2	174	743
7:30-7:45	2	64	7	4	128	1	0	0	8	5	0	0	219	768
7:45-8:00	5	44	7	6	93	1	1	0	9	3	0	0	169	743
8:00-8:15	9	43	4	4	101	0	1	0	13	5	0	1	181	622
8:15-8:30	5	52	5	2	115	2	0	0	14	3	0	1	199	
8:30-8:45	7	54	5	2	105	1	0	1	9	7	0	3	194	
8:45-9:00	2	20	1	2	21	1	0	0	0	1	0	0	48	
AM PEAK HOUR IS FROM:	7:30 AM TO 8:30AM													
Volumes	21	203	23	16	437	4	2	0	44	16	0	2	768	
Season Factor	26	256	29	20	551	5	3	0	55	20	0	3	968	
Growth	26	256	29	20	551	5	3	0	55	20	0	3	968	
In/Out	-	-	-	-	-	-	-	-	-	-	-	-	-	
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	26	256	29	20	551	5	3	0	55	20	0	3	968	



Seasonal Factor: 1.26
Trips In
Trips Out
Growth Rate: 1.016
Years Grown:

15 Min Period lanes	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
4:00-4:15	13	169	5	2	55	1	0	0	8	2	0	3	258	1008
4:15-4:30	17	181	8	0	44	1	1	0	5	4	0	2	263	1048
4:30-4:45	8	141	5	3	80	2	0	0	5	2	0	2	248	1068
4:45-5:00	13	141	2	3	68	3	0	0	4	2	0	3	239	1044
5:00-5:15	16	190	3	3	58	0	2	0	5	9	2	10	298	994
5:15-5:30	15	186	1	2	54	3	2	0	9	7	0	4	283	
5:30-5:45	15	120	8	5	63	1	0	0	2	8	0	2	224	
5:45-6:00	12	94	3	4	54	3	0	1	5	3	1	7	188	
PM PEAK HOUR IS FROM:	4:30 PM TO 5:30PM													
Volumes	52	658	11	11	260	8	4	0	23	20	2	19	1068	
Season Factor	66	829	14	14	328	10	5	0	29	25	3	24	1346	
Growth	66	829	14	14	328	10	5	0	29	25	3	24	1346	
In/Out	-	-	-	-	-	-	-	-	-	-	-	-	-	
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Project	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	66	829	14	14	328	10	5	0	29	25	3	24	1346	



Seasonal Factor: 1.26
Growth Rate: 1.016
Trips In:
Trips Out:
Years Grown: 0

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 8900 EAST- A1A TO US1

MOCF: 0.87

WEEK	DATES	SF	PSCF
* 1	01/01/2020 - 01/04/2020	0.98	1.13
* 2	01/05/2020 - 01/11/2020	0.90	1.03
* 3	01/12/2020 - 01/18/2020	0.83	0.95
* 4	01/19/2020 - 01/25/2020	0.82	0.94
* 5	01/26/2020 - 02/01/2020	0.80	0.92
* 6	02/02/2020 - 02/08/2020	0.79	0.91
* 7	02/09/2020 - 02/15/2020	0.78	0.90
* 8	02/16/2020 - 02/22/2020	0.81	0.93
* 9	02/23/2020 - 02/29/2020	0.85	0.98
*10	03/01/2020 - 03/07/2020	0.88	1.01
*11	03/08/2020 - 03/14/2020	0.91	1.05
*12	03/15/2020 - 03/21/2020	0.94	1.08
*13	03/22/2020 - 03/28/2020	1.07	1.23
14	03/29/2020 - 04/04/2020	1.21	1.39
15	04/05/2020 - 04/11/2020	1.34	1.54
16	04/12/2020 - 04/18/2020	1.47	1.69
17	04/19/2020 - 04/25/2020	1.37	1.57
18	04/26/2020 - 05/02/2020	1.28	1.47
19	05/03/2020 - 05/09/2020	1.19	1.37
20	05/10/2020 - 05/16/2020	1.09	1.25
21	05/17/2020 - 05/23/2020	1.07	1.23
22	05/24/2020 - 05/30/2020	1.05	1.21
23	05/31/2020 - 06/06/2020	1.03	1.18
24	06/07/2020 - 06/13/2020	1.00	1.15
25	06/14/2020 - 06/20/2020	0.98	1.13
26	06/21/2020 - 06/27/2020	1.01	1.16
27	06/28/2020 - 07/04/2020	1.04	1.20
28	07/05/2020 - 07/11/2020	1.06	1.22
29	07/12/2020 - 07/18/2020	1.09	1.25
30	07/19/2020 - 07/25/2020	1.09	1.25
31	07/26/2020 - 08/01/2020	1.09	1.25
32	08/02/2020 - 08/08/2020	1.09	1.25
33	08/09/2020 - 08/15/2020	1.10	1.26✓
34	08/16/2020 - 08/22/2020	1.09	1.25
35	08/23/2020 - 08/29/2020	1.09	1.25
36	08/30/2020 - 09/05/2020	1.09	1.25
37	09/06/2020 - 09/12/2020	1.09	1.25
38	09/13/2020 - 09/19/2020	1.09	1.25
39	09/20/2020 - 09/26/2020	1.09	1.25
40	09/27/2020 - 10/03/2020	1.08	1.24
41	10/04/2020 - 10/10/2020	1.08	1.24
42	10/11/2020 - 10/17/2020	1.08	1.24
43	10/18/2020 - 10/24/2020	1.07	1.23
44	10/25/2020 - 10/31/2020	1.06	1.22
45	11/01/2020 - 11/07/2020	1.06	1.22
46	11/08/2020 - 11/14/2020	1.05	1.21
47	11/15/2020 - 11/21/2020	1.05	1.21
48	11/22/2020 - 11/28/2020	1.03	1.18
49	11/29/2020 - 12/05/2020	1.01	1.16
50	12/06/2020 - 12/12/2020	0.99	1.14
51	12/13/2020 - 12/19/2020	0.98	1.13
52	12/20/2020 - 12/26/2020	0.90	1.03
53	12/27/2020 - 12/31/2020	0.83	0.95

* PEAK SEASON

27-FEB-2021 10:30:03 830UPD 4_8900_PKSEASON.TXT

TABLE 7 Generalized **Peak Hour Directional** Volumes for Florida's Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
2	2,230	3,100	3,740	4,080
3	3,280	4,570	5,620	6,130
4	4,310	6,030	7,490	8,170
5	5,390	7,430	9,370	10,220
6	6,380	8,990	11,510	12,760

Urbanized

Lanes	B	C	D	E
2	2,270	3,100	3,890	4,230
3	3,410	4,650	5,780	6,340
4	4,550	6,200	7,680	8,460
5	5,690	7,760	9,520	10,570

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	580	890	1,200	1,610
2	Divided	1,800	2,600	3,280	3,730
3	Divided	2,700	3,900	4,920	5,600

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1] Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
https://www.fdot.gov/planning/systems/

O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS

FOR

Atlantic Point Marina

Prepared for:

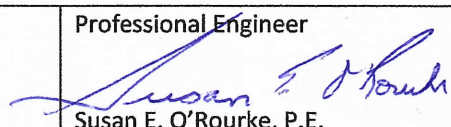
Straticon Construction – Marine Division
451 SW Federal Highway
Stuart, FL 34994

Prepared by:

O'Rourke Engineering & Planning
22 SE Seminole Street
Stuart, Florida 34994
772-781-7918

August 30, 2021
Revised December 2, 2021
Revised February 25, 2022

MR21072.0

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole Street Stuart, Florida 34994 772-781-7918	Professional Engineer  Susan E. O'Rourke, P.E. Date signed and sealed: 2/25/2022 License #: 42684

O'ROURKE
ENGINEERING & PLANNING

August 30, 2021

Mr. Dan Moore
Straticon Construction – Marine Division
451 SW Federal Highway
Stuart, FL 34994

Re: Atlantic Point Marina

Dear Mr. Moore:

O'Rourke Engineering & Planning has completed the traffic analysis of the proposed development of a 6,510 SF restaurant, 105 slip marina and 456 dry space storage in Stuart, Florida. The steps in the analysis and the ensuing results are presented herein.

It has been a pleasure working with you, if you have any questions or comments, please do not hesitate to contact our office.

Respectfully submitted,
O'Rourke Engineering & Planning

Susan E. O'Rourke, P.E.
President

Atlantic Point Marina Traffic Analysis 2.25.2022

22 SE Seminole Street | Stuart, FL 34994 | 772-781-7918 | SEORourke@comcast.net

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APPENDICES

APPENDIX A: Site Plan
APPENDIX B: Transit / Non-Motorized Features
APPENDIX C: Martin County 2019 LOS Report & Dixie/Fern TMC
APPENDIX D: Intersection Analysis Data

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a traffic concurrency analysis for the proposed Resort and Marina to be located east of Flagler Avenue in Stuart, Florida. The project location is shown in **Figure 1,** along with roadway features. The purpose of this report is to determine the project impact on the surrounding roadway system.

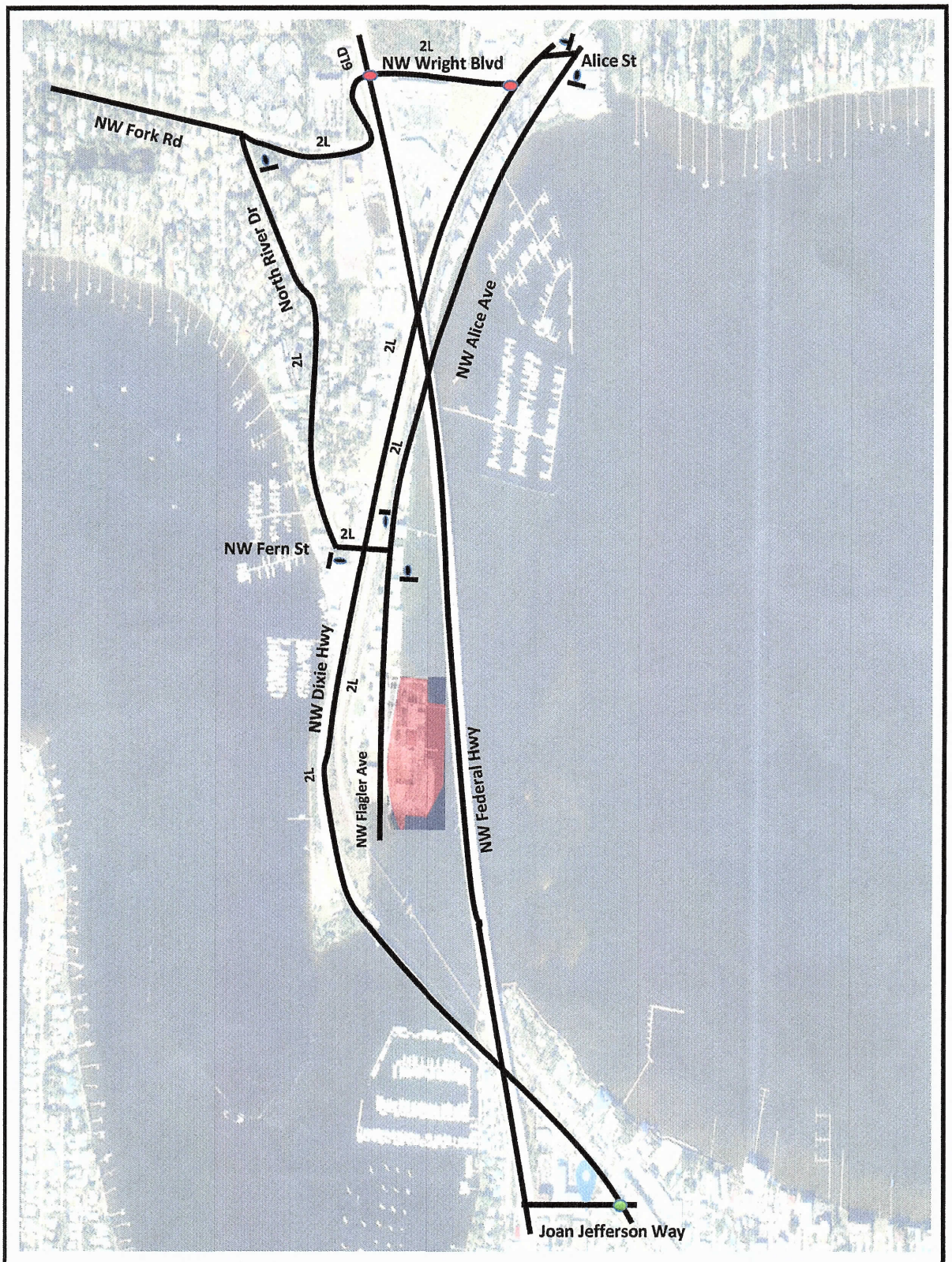
In order to make the determination that the project complies with City of Stuart Concurrency Guidelines, the following analytical steps were taken:

- discussion of land use
- summary of the project
- summary of existing lane geometries
- summary of existing traffic volumes
- assessment of project traffic
- determination of impact area
- summary of short-term cumulative traffic volumes
- summary of levels of service with project traffic added

Each of these steps is outlined herein.

PROJECT DESCRIPTION

The project consists of a 6,510 SF restaurant with 162 seats, a 105-slip marina with a ship store and other amenities, and a 456 space dry boat storage. The site is currently occupied with marina, boat storage warehouse, and office use. The project site plan is provided in **APPENDIX A. APPENDIX B** includes non-motorized and transit information.



O'ROURKE ENGINEERING & PLANNING

NTS 22 SE Seminole St
Stuart, Fl 34994

Job #: MR21072.0 | Date: 8/23/2021

Legend

= Signalized
= Project Location
= Round About
= Stop Sign

Figure 1

Project Location

Atlantic Point Marina

EXISTING CONDITIONS

The study area is defined as the roadways upon which the project has an impact of 5% of the level of service capacity of the roadway and immediate accessed link. Once the project traffic was assigned, the study area was refined based on the impact percentages.

The study area roadways were defined in terms of existing lane geometrics and existing traffic volumes.

Existing Lane Geometrics and Traffic Control

The study area was reviewed to determine the existing number and type of lanes, and the traffic control along the roadway. Each roadway is described below.

- Dixie Highway (US-1) is a two -lane arterial roadway with a north/south alignment
- Fern Street is a two-lane local road with an east/west alignment
- Flagler is a two-lane local north/south road that serves the Harborage community
- Wright Boulevard is a two lane collector with an east/west alignment

Existing Traffic Volumes/ Service Volume

Traffic volumes were obtained from the Martin County 2019 Roadway Level of Service Inventory Report and supplemented with counts made in the field. The number of lanes and the associated peak hour/peak direction service volumes will be summarized in the upcoming sections of the report. The service volumes were developed based on the functional classification contained in the 2019 Martin County Level of Service Report. These documents are included in **APPENDIX B.**

PROJECT TRAFFIC

To estimate traffic generated by the project, the ITE Trip Generation, 10th Edition trip rates were applied. Pass by percentage rates not applied due to the location of the project. Internal capture rates were based on ITE. These calculations provide an estimate of the typical generation. Trip generation for the project is shown in **Table 1.**

As shown, the proposed project will generate 1,135 net daily trips. There will be 99 AM peak hour trips and 110 PM peak hour trips. There is an existing marina on the site that will be replaced with the new development. The marina, storage, and office building generate 201 daily trips, 18 AM peak hour trips, and 24 PM peak hour trips. **Table 1b** summarizes the trips from the existing building. Subtracting the trips from the existing building yields 934 daily trips, 81 AM peak hour trips, and 86 PM peak hour trips as shown in **Table 1c.**

Table 1 - Trip Generation - Proposed

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Internalization Trips				Net External Trips		
					In	Out	In	Out	Total	In	Out	Total	%	In	Out	Total
Boat Barn - 456 space (warehouse)	150	108,988	Sft	T = 1.74(X)	50%	50%	95	95	190	12	5	17	8.9%	83	90	173
Ship Store (Retail Shopping LU Code)	820	2,000	Sft	T = 37.75(X)	50%	50%	38	38	76	3	5	8	10.5%	35	33	68
High-Turnover (Sit-Down) Restaurant	932	162	Seats	T = 4.37(X)	50%	50%	354	354	708	16	31	47	6.6%	338	323	661
Marina	420	105	Berths	T = 2.41(X)	50%	50%	127	126	253	16	6	22	8.7%	111	120	231
TOTALS							**614**	**613**	**1,227**	**47**	**47**	**94**	**7.7%**	**567**	**566**	**1,133**

Source: ITE 10th Edition Trip Generation Rates

Table 1b: AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Internalization Trips				Net External Trips		
					In	Out	In	Out	Total	In	Out	Total	%	In	Out	Total
Boat Barn - 456 space (warehouse)	150	108,988	Sft	T = 0.17(X)	77%	23%	15	4	19	2	1	3	15.8%	13	3	16
Ship Store (Retail Shopping LU Code)	820	2,000	Sft	T = 0.94(X)	62%	38%	1	1	2	-	-	-	0.0%	1	1	2
High-Turnover (Sit-Down) Restaurant	932	162	Seats	T = .48(X)	52%	48%	41	37	78	1	3	4	5.1%	40	34	74
Marina	420	105	Berths	.07(X)	33%	67%	2	5	7	1	-	1	14.3%	1	5	6
TOTALS							**59**	**47**	**106**	**4**	**4**	**8**	**7.5%**	**55**	**43**	**98**

Source: ITE 10th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Internalization Trips				Net External Trips		
					In	Out	In	Out	Total	In	Out	Total	%	In	Out	Total
Boat Barn - 456 space (warehouse)	150	108,988	Sft	T = 0.19(X)	27%	73%	6	15	21	1	-	1	4.8%	5	15	20
Ship Store (Retail Shopping LU Code)	820	2,000	Sft	T = 3.81(X)	48%	52%	4	4	8	2	1	3	37.5%	2	3	5
High-Turnover (Sit-Down) Restaurant	932	162	Seats	T = .42(X)	57%	43%	39	29	68	2	4	6	8.8%	37	25	62
Marina	420	105	Berths	T =.21(X)	60%	40%	13	9	22	1	1	2	9.1%	12	8	20
TOTALS							**62**	**57**	**119**	**6**	**6**	**12**	**10.1%**	**56**	**51**	**107**

Source: ITE 10th Edition Trip Generation Rates

Table 1B - Trip Generation - Existing

Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Internalization Trips				Net External Trips		
					In	Out	In	Out	Total	In	Out	Total	%	In	Out	Total
Office	712	5,483	SF	T = 16.19(X)	50%	50%	45	44	89	-	-	-	0.0%	45	44	89
Warehouse/Boat Barn/Other	150	37,975	SF	T = 1.74(X)	50%	50%	33	33	66	-	-	-	0.0%	33	33	66
Marina	420	19	Berths	T = 2.41(X)	50%	50%	23	23	46	-	-	-	0.0%	23	23	46
TOTALS							**101**	**100**	**201**	**-**	**-**	**-**	**0.0%**	**101**	**100**	**201**

Source: ITE 10th Edition Trip Generation Rates

AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Internalization Trips				Net External Trips		
					In	Out	In	Out	Total	In	Out	Total	%	In	Out	Total
Office	712	5,483	SF	T = 1.92(X)	83%	18%	9	2	11	-	-	-	0.0%	9	2	11
Warehouse/Boat Barn/Other	150	37,975	SF	T = 0.17(X)	77%	23%	5	1	6	-	-	-	0.0%	5	1	6
Marina	420	19	Berths	T = 0.07(X)	33%	67%	-	1	1	-	-	-	0.0%	-	1	1
TOTALS							**14**	**4**	**18**	**-**	**-**	**-**	**0.0%**	**14**	**4**	**18**

Source: ITE 10th Edition Trip Generation Rates

PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Internalization Trips				Net External Trips		
					In	Out	In	Out	Total	In	Out	Total	%	In	Out	Total
Office	712	5,483	SF	T = 2.45(X)	32%	68%	4	9	13	-	-	-	0.0%	4	9	13
Warehouse/Boat Barn/Other	150	37,975	SF	T = 0.19(X)	27%	73%	2	5	7	-	-	-	0.0%	2	5	7
Marina	420	19	Berths	T = 0.21(X)	60%	40%	2	2	4	-	-	-	0.0%	2	2	4
TOTALS							**8**	**16**	**24**	**-**	**-**	**-**	**0.0%**	**8**	**16**	**24**

Source: ITE 10th Edition Trip Generation Rates

Table 1c: Net Trip Generation							
		AM Net Trips			PM Net Trips		
	Daily Net Trips	In	Out	Total	In	Out	Total
Proposed Project	1133	55	43	98	56	51	107
Existing Uses	201	14	4	18	8	16	24
Difference	932	41	39	80	48	35	83

PROJECT DISTRIBUTION/ ASSIGNMENT/IMPACT

The project traffic was distributed by general geographic direction and then assigned to the roadway network.

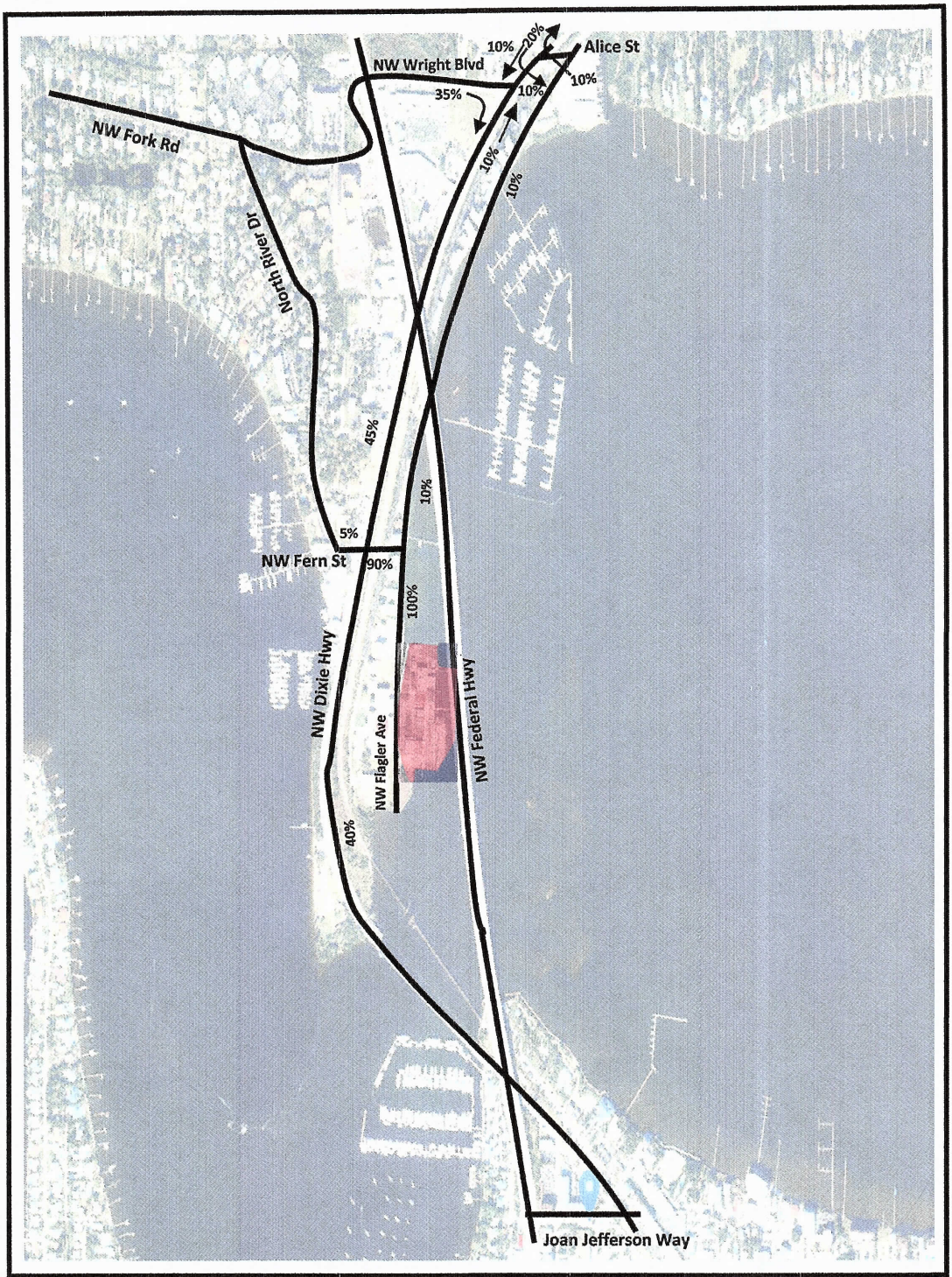
Distribution/ Assignment – This general distribution led to an assignment of trips based on the anticipated ultimate destinations and the roadway paths used to reach those destinations. The project assignment is shown in **Figure 2**.

Impact – Tables 2a and 2b summarize the project impact as a percent of service volume capacity. Project traffic is considered significant when the impact is 5% or more of LOS D.

LINK ANALYSIS / CONCURRENCY REVIEW

The project is significant only on Flagler Avenue, a local access roadway. The other links were evaluated for informational purposes. The total traffic on the link at project buildout was compared to the roadway capacity. To estimate the total traffic for the anticipated project buildout year of 2024, the existing link volumes were obtained from a turning movement count at Fern Street and Dixie Highway. The existing traffic was grown 3 years using the average annual growth rate also provided in the report.

Tables 3a and 3b summarize the results of the link analysis. As shown, the roadways will operate at acceptable levels of service. The TMC is provided in **Appendix D.**



O'ROURKE ENGINEERING & PLANNING

NTS 22 SE Seminole St
Stuart, Fl 34994

Job #: MR21072.0 | Date: 8/23/2021

Legend

= Project Location

Figure 2

Percent Assignment

Atlantic Point Marina

Table 2a: Percent Impact - AM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	LOS D[1] Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	yes	675	39	100%	5.78%
	Fern St	Project Driveway	SB	IN	2L	yes	675	41	100%	6.07%
	Fern St	Alice	NB	OUT	2L	no	675	4	10%	0.59%
	Fern St	Alice	SB	IN	2L	no	675	4	10%	0.59%
Dixie Hwy	Alice	Wright	NB	OUT	2L	no	880	8	20%	0.91%
	Alice	Wright	SB	IN	2L	no	880	8	20%	0.91%
	Wright	Fern St	NB	OUT	2L	no	880	18	45%	2.05%
	Wright	Fern St	SB	IN	2L	no	880	18	45%	2.05%
	Fern St	Joan Jefferson Way	NB	OUT	2L	no	880	16	40%	1.82%
	Fern St	Joan Jefferson Way	SB	IN	2L	no	880	16	40%	1.82%
Fern St	Dixie	Flagler	EB	IN	2L	no	750	37	90%	4.93%
	Dixie	Flagler	WB	OUT	2L	no	750	35	90%	4.67%
Wright Blvd	US1	Dixie	EB	IN	2L	no	750[1]	14	35%	1.87%
	US1	Dixie	WB	OUT	2L	no	750	14	35%	1.87%

(1) 2020 FDOT Quality LOS Handbook

In: 41
Out: 39

8

Table 2b: Percent Impact - PM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	LOS D[1] Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	yes	675	35	100%	5.19%
	Fern St	Project Driveway	SB	IN	2L	yes	675	48	100%	7.11%
	Fern St	Alice	NB	OUT	2L	no	675	4	10%	0.59%
	Fern St	Alice	SB	IN	2L	no	675	5	10%	0.74%
Dixie Hwy	Alice	Wright	NB	OUT	2L	no	880	7	20%	0.80%
	Alice	Wright	SB	IN	2L	no	880	10	20%	1.14%
	Wright	Fern St	NB	OUT	2L	no	880	16	45%	1.82%
	Wright	Fern St	SB	IN	2L	no	880	22	45%	2.50%
	Fern St	Joan Jefferson Way	NB	OUT	2L	no	880	14	40%	1.59%
	Fern St	Joan Jefferson Way	SB	IN	2L	no	880	19	40%	2.16%
Fern St	Dixie	Flagler	EB	IN	2L	yes	750	43	90%	5.73%
	Dixie	Flagler	WB	OUT	2L	no	750	32	90%	4.27%
Wright Blvd	US1	Dixie	EB	IN	2L	no	750[1]	17	35%	2.27%
	US1	Dixie	WB	OUT	2L	no	750	12	35%	1.60%

(1) 2012 FDOT Quality LOS Handbook (750 X 9)

In: 48
Out: 35

Table 3a: Link Analysis - AM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	2021 Volume Peak Hour[2] Peak Direction	Growth Rate	Committed Trips	2024 Volume Peak Hour Peak Direction	LOS D Directional Peak Hour[1]	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	yes	49	1.016	0	51	675	39	100%	5.78%	90	Yes
	Fern St	Project Driveway	SB	IN	2L	yes	23	1.016	0	24	675	41	100%	6.07%	65	Yes
	Fern St	Alice	NB	OUT	2L	no	49	1.016	21	72	675	4	10%	0.59%	76	Yes
	Fern St	Alice	SB	IN	2L	no	23	1.016	22	46	675	4	10%	0.59%	50	Yes
Fern Street	Dixie	Alice	EB	IN	2L	no	49	1.016	21	72	750	0	90%	0.00%	72	Yes
	Dixie	Alice	WB	OUT	2L	no	23	1.016	22	46	750	0	90%	0.00%	46	Yes

(1) 2020 FDOT Quality Level of Service Handbook Tables
(2) From Turning Movement Counts on: 8/11/2021
(3) Martin County 2019 Level of Service Inventory Report

In: 41
Out: 39
Years Grown: 3

Table 3b: Link Analysis - PM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic 5% or More of Capacity?	2021 Volume Peak Hour[2] Peak Direction	Growth Rate	Committed Trips	2024 Volume Peak Hour Peak Direction	LOS D Directional Peak Hour[1]	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Flagler Ave	Fern St	Project Driveway	NB	OUT	2L	yes	28	1.016	0	29	675	35	100%	5.19%	64	Yes
	Fern St	Project Driveway	SB	IN	2L	yes	52	1.016	0	55	675	48	100%	7.11%	103	Yes
	Fern St	Alice	NB	OUT	2L	no	28	1.016	27	56	675	4	10%	0.59%	60	Yes
	Fern St	Alice	SB	IN	2L	no	52	1.016	19	74	675	5	10%	0.74%	79	Yes
Fern Street	Dixe	Alice	EB	IN	2L	no	28	1.016	27	56	750	43	90%	4.27%	99	Yes
	Dixie	Alice	WB	OUT	2L	no	52	1.016	19	74	750	32	90%	2.27%	106	Yes

(1) 2020 FDOT Quality Level of Service Handbook Tables
(2) From Turning Movement Counts on: 8/11/2021
3) Martin County 2019 Level of Service Inventory Report

In: 48
Out: 35
Years Grown: 3

INTERSECTION ANALYSIS

The intersection of Dixie Highway and Fern Street was analyzed for impacts from the project. The intersection was counted in August 2021. A seasonal factor of 1.26 was applied, which is the FDOT seasonal factor for east of US 1. Existing volumes were grown 3 years to 2024 using the Martin County Average Annual Growth rate of 1.61%, the rate for Dixie Highway. The project traffic was then added to obtain the total traffic turning movements.

The intersections were analyzed using the Highway Capacity Software for existing, 2024 without project traffic, and 2024 with project traffic. This information is summarized below in **Table 4**. The intersection data and turning movement counts data are shown in Appendix D.

Table 4: Intersection Analysis - Fern & Dixie				
	AM		PM	
	LOS*	Delay*	LOS*	Delay*
Existing	C	18.6	D	28.3
2024 Without Project	C	19.8	D	33.9
2024 With Project	C	22.5	E	47.5

*WBL

As shown, the intersection will operate at an acceptable Level of Service.

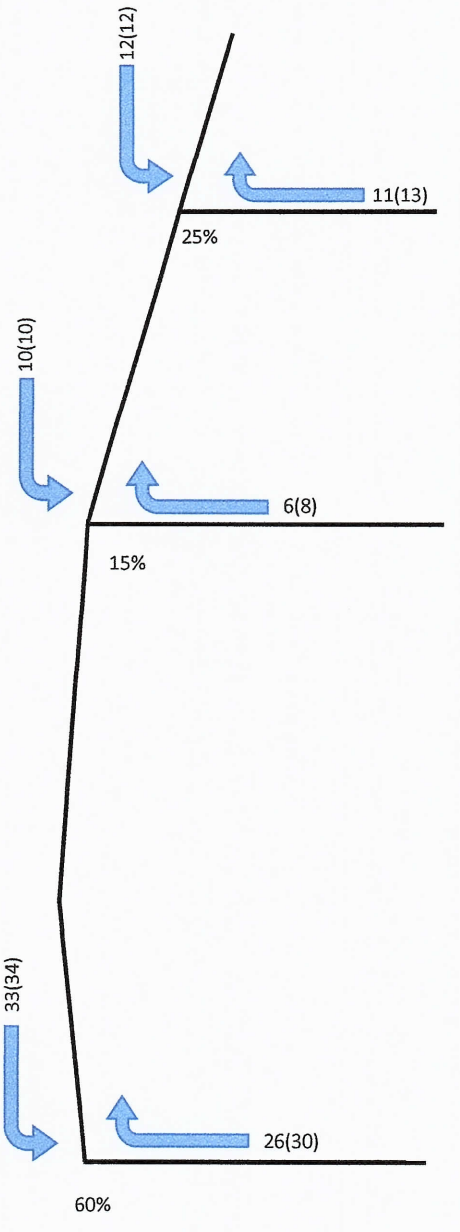
DRIVEWAYS

The site will have two driveways onto Flagler Avenue and Flagler will terminate at the site.

Figure 3 illustrates the driveway volumes. The Flagler Avenue/Fern Street intersection was analyzed as the main "project driveway." The analysis, included at the end of Appendix D, shows that the intersection will operate at LOS A in both the AM and PM peak hours.

CONCLUSION

With a net impact of 932 daily trips, 80 AM peak hour trips and 83 PM peak hour trips, the project does not create the need for additional improvements to the roadway network. Therefore, the project meets the requirements for concurrency.



	IN	OUT
AM	55	43
PM	56	51

O'ROURKE ENGINEERING & PLANNING

NTS 22 SE Seminole Street
Stuart, Fl, 34994

Job #: MR21072.0 | 2.25.2022

Legend

XX(XX) = AM(PM)

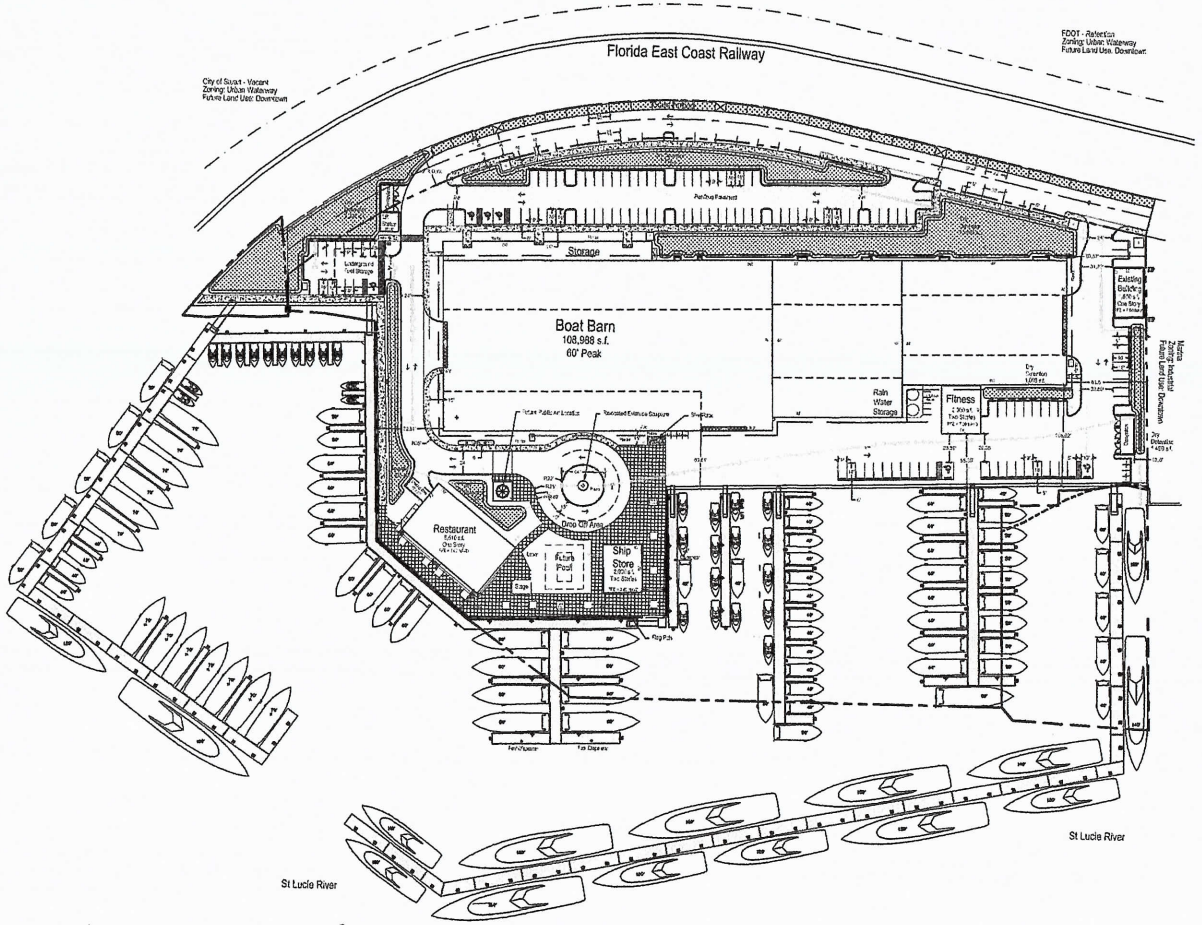
Figure 3

Project Driveway Volumes

Atlantic Point Marina

APPENDIX A

Site Plan



Site Data

Parcel Size:	471,762 s.f. +/-	10.81 Acres +/-	
Parcel Control Number:	32-37-41-004-020-0011		
Site Address:	75 NW Flagler Avenue Stuart, FL 34994		
Dry Land Areas:	342,680 s.f. +/-	7.88 Acres +/-	
Site:	300,228 s.f. +/-	7 Acres +/-	
Right Of Way:	37,432 s.f. +/-	.88 Acres +/-	
Submerged Land Areas:	128,522 s.f. +/-	2.93 Acres +/-	
Total Marina Slips:		106	
Total Dry Rack Spaces:		456	
Maximum Building Height:			
Industrial		45' / 4 Stories	
Urban Code / CRA		45' / 60'	
Existing Use:		Former Boat Business	
Proposed Use:		Marina Facility & Restaurant	
Existing Zoning:		Industrial	
Proposed Zoning:		Industrial	
Future Land Use:		Industrial	
Proposed Future Land Use:		Marine/Industrial	
Impervious:	246,983 s.f.	5.67 Acres	72%
Proj. Site: (Including Right Of Way)			
Buildings: (Plan view outline)	121,068 s.f.	2.78 Acres	
Impervious Pavements:	92,179 s.f.	2.125 Acres	
Pervious Pavements:	11,629 s.f.	.25 Acres	
Grass Parking:	3,282 s.f.	.075 Acres	
Impervious Pool & Pool Deck:	3,915 s.f.	.09 Acres	
Pervious Sidewalks:	15,450 s.f.	.35 Acres	
Pervious (Open Space):	95,677 s.f.	2.19 Acres	28%
Proj. Site: (Including Right Of Way)			
Landscape Area:	28,672 s.f.	.065 Acres	
Dry Retention Area:	38,864 s.f.	.65 Acres	
Pervious Pavements:	11,629 s.f.	.25 Acres	
Grass Parking:	3,282 s.f.	.075 Acres	
Pervious Sidewalks:	15,450 s.f.	.35 Acres	

Open Space:	Required:	Provided:
	No Minimum	19%

Parking Calculations:	Required:	Provided:
Boat Dry Storage	46	46
1 Space / 10 Boat Storage Spaces		
Marina	27	27
1 Space / 4 Boat Slips	27	27
+ 1 Space / Employee	See Below	See Below
Ship Store	5	5
1 Space / 200 s.f. (Multi-Use Building - Only 1,162 s.f. of sales area calculated)		
Restaurant - Limited	41	41
1 Space / 4 Seats at maximum capacity (162 Seats)	41	41
+ 1 Space / Employee	See Below	See Below
Total Employees	27	27
Marina	14	14
Restaurant:	13	13

Total employee count is 54 working varying shifts.
Includes the following:
Marina - manager next, ship store, sales / administration, marine support staff
= 28 (but not 28 at one time due to two (2) shifts) = 28 / 2 shifts = 14 Spaces
Restaurant - management and bar / kitchen support staff
= 26 (but not 26 at one time due to varying shifts) = 26 / 2 (or more) shifts = 13 Spaces

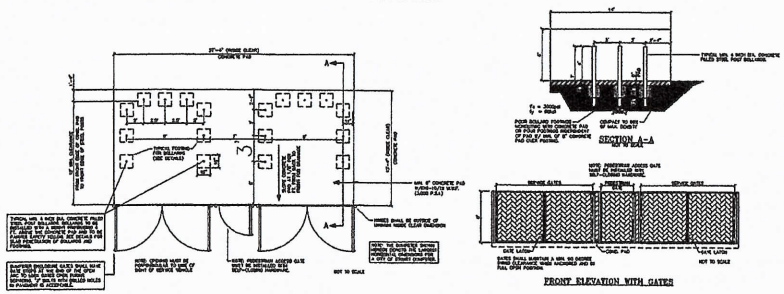
Total:	146	182 (36 Extra)
On Site:	146	123
Right Of Way:	0	56
Paved:	0	23
Grass Overflow:	0	33

General Notes

1. This project shall be completed in five phases.
2. All prohibited exotic plant species shall be removed prior to the issuance of a Certificate of Occupancy.
3. All new tree landscaping shall be installed prior to the issuance of a Certificate of Occupancy. Refer to the Landscape Plans for landscape details and specifications.
4. Refer to Construction Drawings for location of traffic control devices.
5. The applicant will request in writing, prior to any land grading, the public inspection be performed to determine if barricades have been properly installed on the site if required.
6. All signs will be reviewed for compliance with the applicable regulations at the time the sign permit is issued.
7. ADA parking and access areas shall document compliance with the requirements of the American Disabilities Act prior to the issuance of a building permit.
8. The parking areas shown on this horizon are private and will be owned and maintained by the project owner.
9. Finished Floor Elevations TFE are NAVD 88.
10. Water and sewer service shall be provided by City of Stuart Utilities.
11. Photometric site lighting plans shall be provided to the City of Stuart for review and approval prior to site development permit approval.

City of Stuart Dumpster Detail

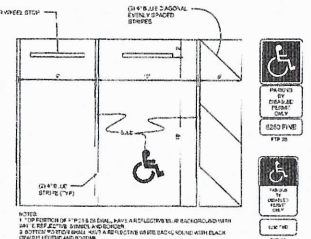
Not To Scale



CITY OF STUART DUMPSTER ENCLOSURE – SITE DETAIL
DOUBLE DUMPSTER w/ RECYCLING
& GREASE DISPOSAL CONTAINER

Standard & Handicap Parking Space Detail

Not To Scale



Site Plan



Conceptual Design Group, Inc.
Landscape Architecture - Site Planning
900 NE Ocean Boulevard, Suite 130
Stuart, Florida 34994
(772) 344-2349
Lic. #0000198

Atlantic Point Marina

City of Stuart, Florida

A-1

Job No.	21-0609
Drawn By	JWS
Submittal Dates	8-27-2021
	12-3-2021
	2-21-2022
Revision Dates	
City Comments #1	12-3-2021
City Comments #2	2-21-2022

These drawings are the property of the landscape architect and are not to be used for other projects except by written permission from the landscape architect. Report any discrepancies immediately to the landscape architect.

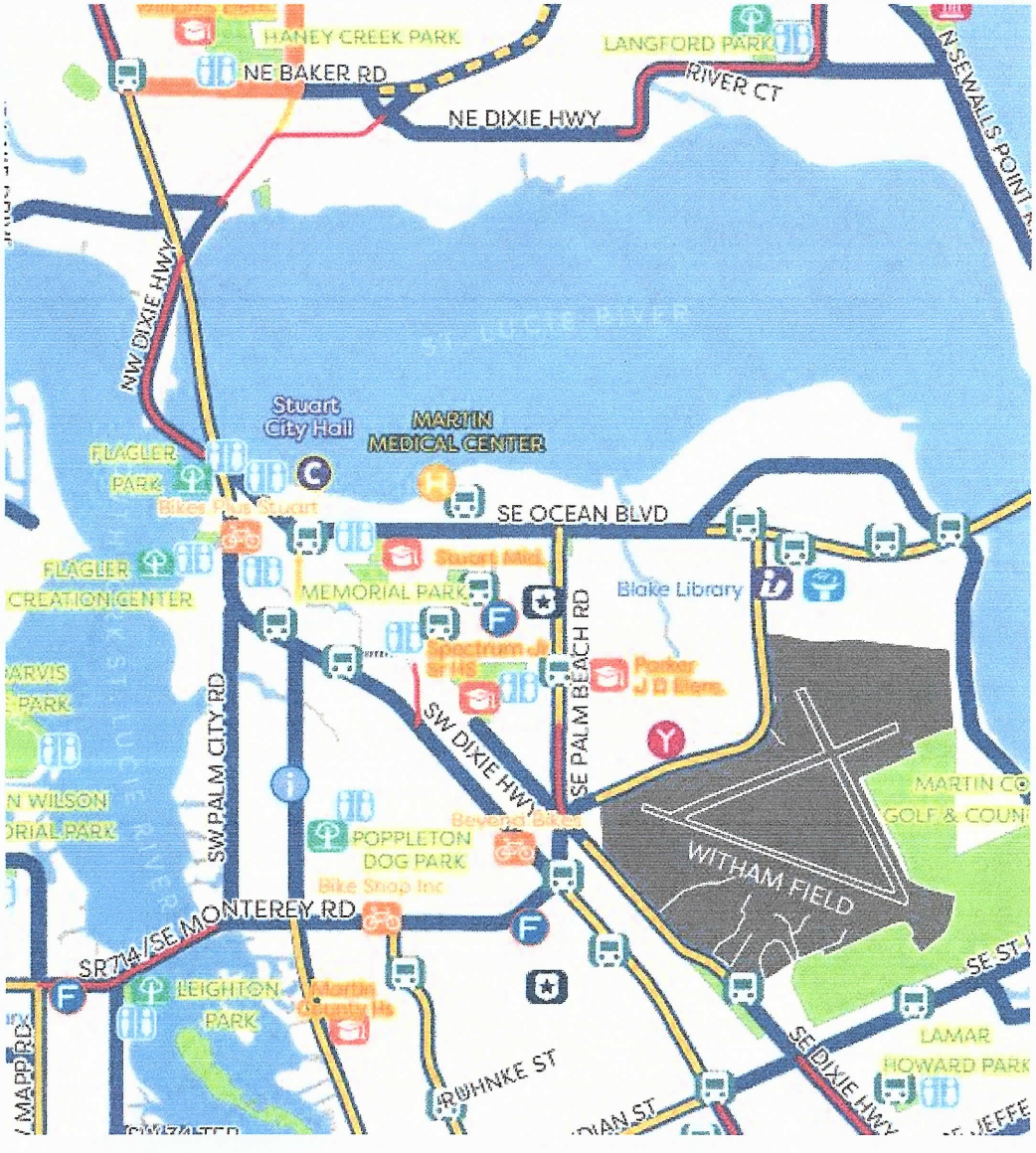
Sheet 1 of 1

APPENDIX B

Transit / Non-Motorized Features

MARTIN COUNTY
Bicycle & Pedestrian Facilities Map

MARTIN MPO
Metropolitan Planning Organization



Legend

- Bicycle Shops
- Water Fountains
- Public Restrooms
- Fire Rescue Departments
- Police Stations
- Beach Access
- Museums and Research Centers
- Libraries
- Schools
- The Stuart/Martin County Chamber of Commerce
- Stuart City Hall
- YMCA of the Treasure Coast
- Hospitals
- Transit Stops
- Parks

Existing Facilities

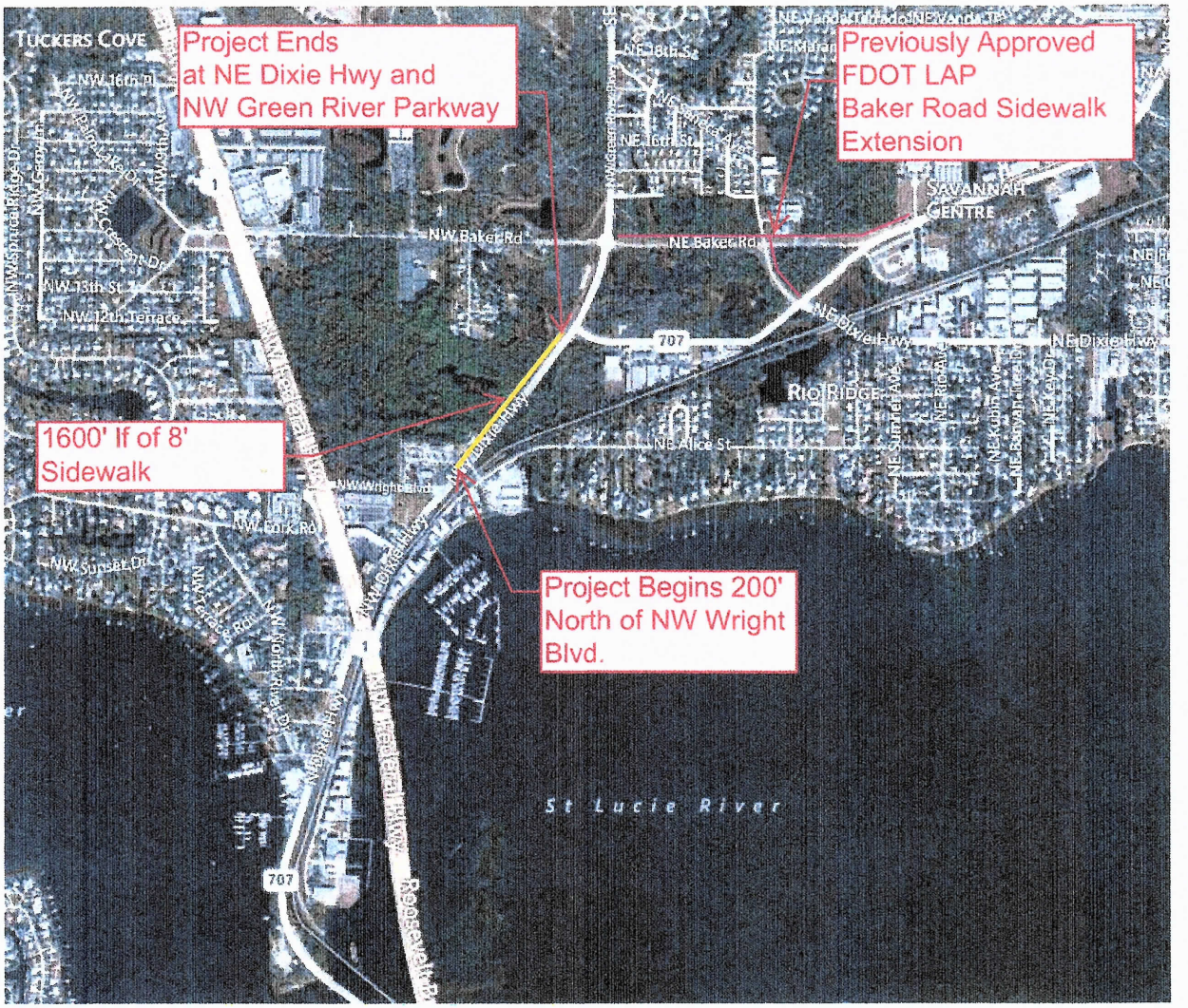
- Sidewalks Along Main Roads*
- Bicycle Lanes
- Paved Shoulders
- Shared-Use Paths

Future Facilities

- Sidewalks
- Bicycle Lanes
- Buffered Bicycle Lanes
- Shared-Use Paths

Source: MartinMPO.com

NW Dixie Highway
Sidewalk Extension Project



FY 19/20
Transportation Alternatives
Program LOCATION MAP
City of Stuart

APPENDIX C

Martin County 2019 LOS Report
Dixie/Fern TMC

Martin County 2019 Roadway Level of Service Inventory Report

Road Name	From	To	Type	Generalized Service Capacity	2019 Average Annual Daily Traffic	2019 Peak Hour Directional Volume	2019 Generalized LOS	Avg. Annual Growth Rate
CR-714 (Veteran's Memorial Bridge)	Mapp Rd	SR-76	Class I: 4-Ln Divided	2000	23,957	1,622	C	6.1%
CR-723 (Savanna Rd)	CR-707	NE 24th St	Class I: 2-Ln Undivided	880	9,135	384	C	0.5%
CR-723 (Savanna Rd)	NE 24th St	CR-707A (Jonson Beach Blvd.)	Class I: 2-Ln Undivided	880	9,631	471	C	1.0%
CR-726 (Citrus Blvd)	SR-710	Greenridge Ln	Uninterrupted Rural Hwy: 2-Ln Undivided	740	2,783	126	A/B	0.5%
CR-726 (Citrus Blvd)	Greenridge Ln	CR-76A	Uninterrupted Rural Hwy: 2-Ln Undivided	740	2,488	137	A/B	0.5%
CR-76A (Citrus Blvd.)	CR-726	SR-714	Transitional 2-Ln Uninter /Undivided Flow	1200	4,269	283	A/B	8.0%
CR-76A (SW 96th St)	CR-726	Pennsylvania Ave	Transitional 2-Ln Uninter /Undivided Flow	1200	3,845	195	A/B	8.0%
CR-76A (SW 96th St)	Pennsylvania Ave	SR-76	Class I: Transitional 2-Ln Undivided	800	8,086	492	C	2.5%
CR-A1A (Dixie Hwy)	SR-5	CR-708	Class II: 2-Ln Undivided	750	3,416	192	C	4.7%
CR-A1A (Dixie Hwy)	CR-708	Osprey St	Class I: 2-Ln Undivided	880	7,552	477	C	3.7%
CR-A1A (Dixie Hwy)	Osprey St	Heritage Blvd	2-Ln Uninter /Undivided Flow	1190	6,595	393	A/B	3.1%
CR-A1A (Dixie Hwy)	Heritage Blvd	Cove Rd	2-Ln Uninter /Undivided Flow	1190	7,147	346	A/B	2.9%
CR-A1A (Dixie Hwy)	Cove Rd	Salerno Rd	Class II: 2-Ln Divided	790	12,131	617	D	3.1%
CR-A1A (Dixie Hwy)	Salerno Rd	St. Lucie Blvd	Class II: 2-Ln Undivided	750	17,261	835	F	3.3%
CR-A1A (Dixie Hwy)	St Lucie Blvd	Jefferson St	Class II: 2-Ln Undivided	750	14,108	748	D	2.9%
CR-A1A (Dixie Hwy)	Jefferson St	Indian St	Class II: 4-Ln Divided	1630	18,389	848	D	2.2%
CR-A1A (Dixie Hwy)	Indian St	SR-714	Class I: 4-Ln Divided	2000	17,161	824	C	3.1%
CR-A1A (Dixie Hwy)	SR-714	SE Fifth St	2-Ln Undivided Non-State	675	6,710	346	D	1.6%
Farm Rd	Dr Martin Luther King Jr Dr	Palm Wy	Class II: 2-Ln Undivided	750	2,817	124	C	3.2%
Fox Brown Rd	SR-710	CR-714	Uninterrupted Rural Hwy: 2-Ln Undivided	740	347	16	A/B	0.0%
Goldenrod Rd	Britt Rd	SR-732	Class II: 4-Ln Divided	1630	4,810	278	A/B	0.5%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB) and Murphy Rd (PM/NB).

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 8900 EAST- A1A TO US1

MOCF: 0.87

WEEK	DATES	SF	PSCF
* 1	01/01/2020 - 01/04/2020	0.98	1.13
* 2	01/05/2020 - 01/11/2020	0.90	1.03
* 3	01/12/2020 - 01/18/2020	0.83	0.95
* 4	01/19/2020 - 01/25/2020	0.82	0.94
* 5	01/26/2020 - 02/01/2020	0.80	0.92
* 6	02/02/2020 - 02/08/2020	0.79	0.91
* 7	02/09/2020 - 02/15/2020	0.78	0.90
* 8	02/16/2020 - 02/22/2020	0.81	0.93
* 9	02/23/2020 - 02/29/2020	0.85	0.98
*10	03/01/2020 - 03/07/2020	0.88	1.01
*11	03/08/2020 - 03/14/2020	0.91	1.05
*12	03/15/2020 - 03/21/2020	0.94	1.08
*13	03/22/2020 - 03/28/2020	1.07	1.23
14	03/29/2020 - 04/04/2020	1.21	1.39
15	04/05/2020 - 04/11/2020	1.34	1.54
16	04/12/2020 - 04/18/2020	1.47	1.69
17	04/19/2020 - 04/25/2020	1.37	1.57
18	04/26/2020 - 05/02/2020	1.28	1.47
19	05/03/2020 - 05/09/2020	1.19	1.37
20	05/10/2020 - 05/16/2020	1.09	1.25
21	05/17/2020 - 05/23/2020	1.07	1.23
22	05/24/2020 - 05/30/2020	1.05	1.21
23	05/31/2020 - 06/06/2020	1.03	1.18
24	06/07/2020 - 06/13/2020	1.00	1.15
25	06/14/2020 - 06/20/2020	0.98	1.13
26	06/21/2020 - 06/27/2020	1.01	1.16
27	06/28/2020 - 07/04/2020	1.04	1.20
28	07/05/2020 - 07/11/2020	1.06	1.22
29	07/12/2020 - 07/18/2020	1.09	1.25
30	07/19/2020 - 07/25/2020	1.09	1.25
31	07/26/2020 - 08/01/2020	1.09	1.25
32	08/02/2020 - 08/08/2020	1.09	1.25
33	08/09/2020 - 08/15/2020	1.10	1.26 ✓
34	08/16/2020 - 08/22/2020	1.09	1.25
35	08/23/2020 - 08/29/2020	1.09	1.25
36	08/30/2020 - 09/05/2020	1.09	1.25
37	09/06/2020 - 09/12/2020	1.09	1.25
38	09/13/2020 - 09/19/2020	1.09	1.25
39	09/20/2020 - 09/26/2020	1.09	1.25
40	09/27/2020 - 10/03/2020	1.08	1.24
41	10/04/2020 - 10/10/2020	1.08	1.24
42	10/11/2020 - 10/17/2020	1.08	1.24
43	10/18/2020 - 10/24/2020	1.07	1.23
44	10/25/2020 - 10/31/2020	1.06	1.22
45	11/01/2020 - 11/07/2020	1.06	1.22
46	11/08/2020 - 11/14/2020	1.05	1.21
47	11/15/2020 - 11/21/2020	1.05	1.21
48	11/22/2020 - 11/28/2020	1.03	1.18
49	11/29/2020 - 12/05/2020	1.01	1.16
50	12/06/2020 - 12/12/2020	0.99	1.14
51	12/13/2020 - 12/19/2020	0.98	1.13
52	12/20/2020 - 12/26/2020	0.90	1.03
53	12/27/2020 - 12/31/2020	0.83	0.95

* PEAK SEASON

27-FEB-2021 10:30:03 830UPD 4_8900_PKSEASON.TXT

TABLE 7 Generalized **Peak Hour Directional** Volumes for Florida's Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	>5	≥4	≥3	≥2
85-100%	>4	≥3	≥2	≥1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
2	2,230	3,100	3,740	4,080
3	3,280	4,570	5,620	6,130
4	4,310	6,030	7,490	8,170
5	5,390	7,430	9,370	10,220
6	6,380	8,990	11,510	12,760

Urbanized

Lanes	B	C	D	E
2	2,270	3,100	3,890	4,230
3	3,410	4,650	5,780	6,340
4	4,550	6,200	7,680	8,460
5	5,690	7,760	9,520	10,570

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	580	890	1,200	1,610
2	Divided	1,800	2,600	3,280	3,730
3	Divided	2,700	3,900	4,920	5,600

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
https://www.fdot.gov/planning/systems

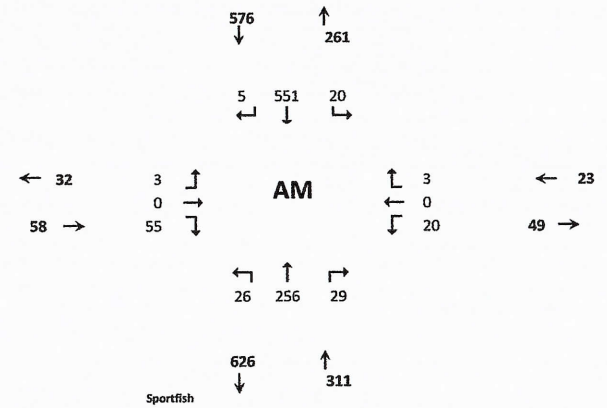
APPENDIX D

Intersection Analysis Data

TURNING MOVEMENT VOLUME COUNTS

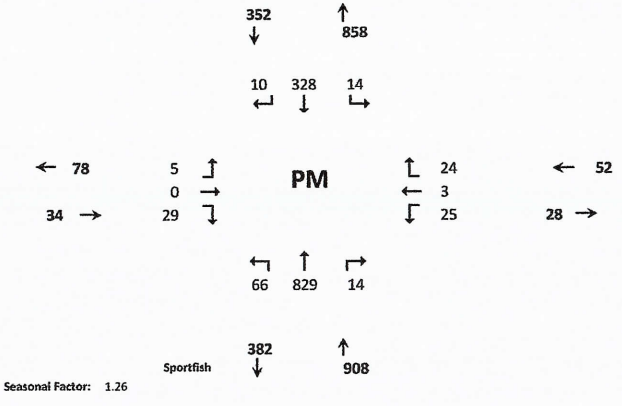
N/S STREET: Dixie Hwy
E/W STREET: Fern St
CONTROL:
FILENAME: Atlantic Point
COUNT DATE: 8/11/2021
DAY: Wednesday
CITY: Stuart
INTERSECTION:
REPORT DATE:
ANALYSIS YEAR: 2021

15 Min Period	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15	3	41	3	2	90	1	0	0	10	2	0	1	153	715
7:15-7:30	3	52	5	2	94	0	1	1	5	9	1	1	174	743
7:30-7:45	2	64	7	4	128	1	0	0	8	5	0	0	219	768
7:45-8:00	5	44	7	6	93	1	1	0	9	3	0	0	169	743
8:00-8:15	9	43	4	4	101	0	1	0	13	5	0	1	181	622
8:15-8:30	5	52	5	2	115	2	0	0	14	3	0	1	199	
8:30-8:45	7	54	5	2	105	1	0	1	9	7	0	3	194	
8:45-9:00	2	20	1	2	21	1	0	0	0	1	0	0	48	
AM PEAK HOUR IS FROM:			7:30 AM TO 8:30AM											
Volumes	21	203	23	16	437	4	2	0	44	16	0	2	768	
Season Factor	26	256	29	20	551	5	3	0	55	20	0	3	968	
Growth	26	256	29	20	551	5	3	0	55	20	0	3	968	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Atlantic Point	0	0	0	0	0	0	0	0	0	0	0	0	0	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Sportfish Marina	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	26	256	29	20	551	5	3	0	55	20	0	3	968	



Seasonal Factor: 1.26
Trips In: 0
Trips Out: 0
Growth Rate: 1
Years Grown: 0

15 Min Period lanes	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
4:00-4:15	13	169	5	2	55	1	0	0	8	2	0	3	258	1008
4:15-4:30	17	181	8	0	44	1	1	0	5	4	0	2	263	1048
4:30-4:45	8	141	5	3	80	2	0	0	5	2	0	2	248	1068
4:45-5:00	13	141	2	3	68	3	0	0	4	2	0	3	239	1044
5:00-5:15	16	190	3	3	58	0	2	0	5	9	2	10	298	994
5:15-5:30	15	186	1	2	54	3	2	0	9	7	0	4	283	
5:30-5:45	15	120	8	5	63	1	0	0	2	8	0	2	224	
5:45-6:00	12	93	3	4	54	3	3	1	5	3	1	7	189	
PM PEAK HOUR IS FROM:			4:30 PM TO 5:30PM											
Volumes	52	658	11	11	260	8	4	0	23	20	2	19	1068	
Season Factor	66	829	14	14	328	10	5	0	29	25	3	24	1346	
Growth	66	829	14	14	328	10	5	0	29	25	3	24	1346	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Atlantic Point	0	0	0	0	0	0	0	0	0	0	0	0	0	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Sportfish Marina	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	66	829	14	14	328	10	5	0	29	25	3	24	1346	



Seasonal Factor: 1.26
Growth Rate: 1
Trips In: 0
Trips Out: 0
Years Grown: 0

D-1

HCS7 Two-Way Stop-Control Report

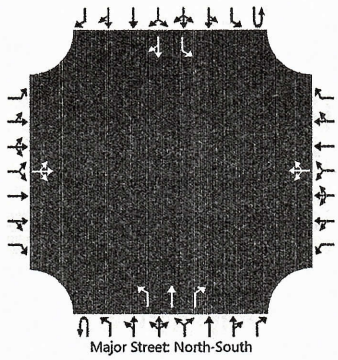
General Information

Analyst	SOR
Agency/Co.	O'R EP
Date Performed	8/30/2021
Analysis Year	2021
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	Atlantic Point Marina

Site Information

Intersection	Dixie and Fern Street
Jurisdiction	City of Stuart
East/West Street	
North/South Street	Dixie HIghway
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	1	0	1	1	0
Configuration			LTR				LTR			L	T	R		L		TR
Volume (veh/h)		3	0	55		20	0	3		26	256	29		20	551	5
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized										No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			66				26			30				23		
Capacity, c (veh/h)			470				292			951				1236		
v/c Ratio			0.14				0.09			0.03				0.02		
95% Queue Length, Q_{95} (veh)			0.5				0.3			0.1				0.1		
Control Delay (s/veh)			13.9				18.6			8.9				8.0		
Level of Service (LOS)			B				C			A				A		
Approach Delay (s/veh)		13.9				18.6				0.7				0.3		
Approach LOS		B				C										

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HCS7 Two-Way Stop-Control Report

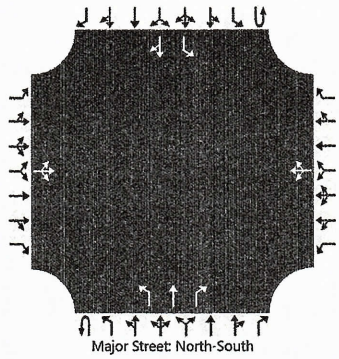
General Information

Analyst	SOR
Agency/Co.	O'R EP
Date Performed	8/30/2021
Analysis Year	2021
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	Atlantic Point Marina

Site Information

Intersection	Dixie and Fern Street
Jurisdiction	City of Stuart
East/West Street	
North/South Street	Dixie HIghway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	1	0	1	1	0
Configuration			LTR				LTR			L	T	R		L		TR
Volume (veh/h)		5	0	29		25	3	24		66	829	14		14	328	10
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized										No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

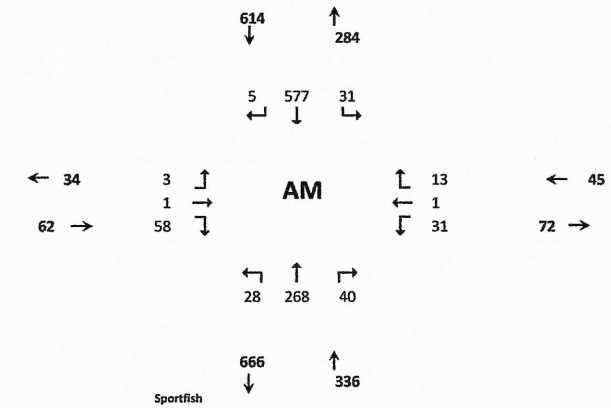
Flow Rate, v (veh/h)			38				58			73				16		
Capacity, c (veh/h)			465				224			1183				731		
v/c Ratio			0.08				0.26			0.06				0.02		
95% Queue Length, Q_{95} (veh)			0.3				1.0			0.2				0.1		
Control Delay (s/veh)			13.4				26.5			8.2				10.0		
Level of Service (LOS)			B				D			A				B		
Approach Delay (s/veh)	13.4				26.5				0.6				0.4			
Approach LOS	B				D											

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TURNING MOVEMENT VOLUME COUNTS

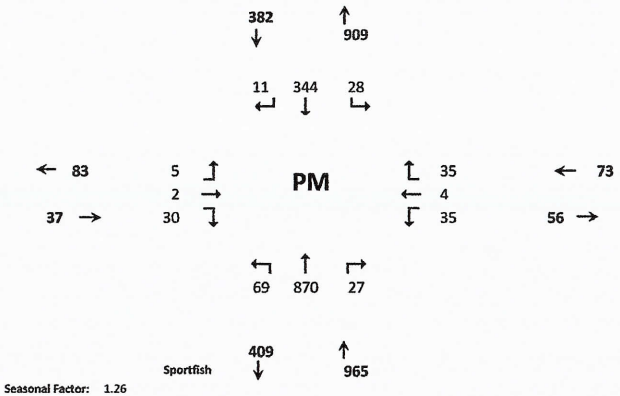
N/S STREET: Dixie Hwy
E/W STREET: Fern St
CONTROL:
FILENAME: Atlantic Point
COUNT DATE: 8/11/2021
DAY: Wednesday
CITY: Stuart
INTERSECTION:
REPORT DATE:
ANALYSIS YEAR: 2024 - WITHOUT PROJECT

15 Min Period	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15	3	41	3	2	90	1	0	0	10	2	0	1	153	715
7:15-7:30	3	52	5	2	94	0	1	1	5	9	1	1	174	743
7:30-7:45	2	64	7	4	128	1	0	0	8	5	0	0	219	768
7:45-8:00	5	44	7	6	93	1	1	0	9	3	0	0	169	743
8:00-8:15	9	43	4	4	101	0	1	0	13	5	0	1	181	622
8:15-8:30	5	52	5	2	115	2	0	0	14	3	0	1	199	
8:30-8:45	7	54	5	2	105	1	0	1	9	7	0	3	194	
8:45-9:00	2	20	1	2	21	1	0	0	0	1	0	0	48	
AM PEAK HOUR IS FROM:	7:30 AM TO 8:30AM													
Volumes	21	203	23	16	437	4	2	0	44	16	0	2	768	
Season Factor	26	256	29	20	551	5	3	0	55	20	0	3	968	
Growth	28	268	30	21	577	5	3	0	58	21	0	3	1015	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Atlantic Point	0	0	0	0	0	0	0	0	0	0	0	0	0	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Sportfish Marina	0	0	9	10	0	0	0	1	0	10	1	11	0	
Total	28	268	40	31	577	5	3	1	58	31	1	13	1015	



Sportfish
Seasonal Factor: 1.26
Trips In 23
Trips Out 24
Growth Rate: 1.016
Years Grown: 3

15 Min Period lanes	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
4:00-4:15	13	169	5	2	55	1	0	0	8	2	0	3	258	1008
4:15-4:30	17	181	8	0	44	1	1	0	5	4	0	2	263	1048
4:30-4:45	8	141	5	3	80	2	0	0	5	2	0	2	248	1068
4:45-5:00	13	141	2	3	68	3	0	0	4	2	0	3	239	1044
5:00-5:15	16	190	3	3	58	0	2	0	5	9	2	10	298	994
5:15-5:30	15	186	1	2	54	3	2	0	9	7	0	4	283	
5:30-5:45	15	120	8	5	63	1	0	0	2	8	0	2	224	
5:45-6:00	12	93	3	4	54	3	3	1	5	3	1	7	189	
PM PEAK HOUR IS FROM:	4:30 PM TO 5:30PM													
Volumes	52	658	11	11	260	8	4	0	23	20	2	19	1068	
Season Factor	66	829	14	14	328	10	5	0	29	25	3	24	1346	
Growth	69	870	15	15	344	11	5	0	30	26	3	25	1411	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Atlantic Point	0	0	0	0	0	0	0	0	0	0	0	0	0	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Sportfish Marina	0	0	12	14	0	0	0	2	0	8	1	9	0	
Total	69	870	27	28	344	11	5	2	30	35	4	35	1411	



Sportfish
Seasonal Factor: 1.26
Growth Rate: 1.016
Trips In: 30
Trips Out: 21
Years Grown: 3

HCS7 Two-Way Stop-Control Report

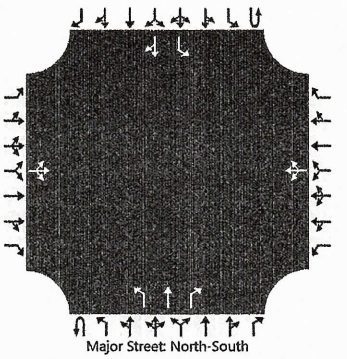
General Information

Analyst	SOR
Agency/Co.	O'R EP
Date Performed	8/30/2021
Analysis Year	2024
Time Analyzed	AM Peak Hour 2024
Intersection Orientation	North-South
Project Description	Atlantic Point Marina w/o Project

Site Information

Intersection	Dixie and Fern Street
Jurisdiction	City of Stuart
East/West Street	
North/South Street	Dixie HIghway
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	1	0	1	1	0
Configuration			LTR				LTR			L	T	R		L		TR
Volume (veh/h)		3	1	58		31	1	13		28	268	40		31	577	5
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized										No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			70				51			32				35		
Capacity, c (veh/h)			440				295			927				1209		
v/c Ratio			0.16				0.17			0.03				0.03		
95% Queue Length, Q_{95} (veh)			0.6				0.6			0.1				0.1		
Control Delay (s/veh)			14.7				19.8			9.0				8.1		
Level of Service (LOS)			B				C			A				A		
Approach Delay (s/veh)	14.7				19.8				0.8				0.4			
Approach LOS	B				C											

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HCS7 Two-Way Stop-Control Report

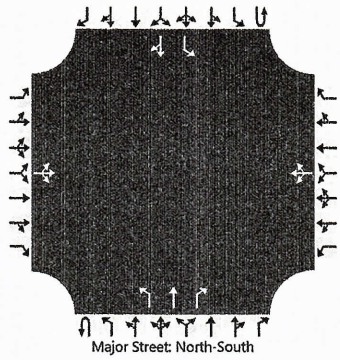
General Information

Analyst	SOR
Agency/Co.	O'R EP
Date Performed	8/30/2021
Analysis Year	2024
Time Analyzed	PM Peak Hour 2024
Intersection Orientation	North-South
Project Description	Atlantic Point Marina w/out project

Site Information

Intersection	Dixie and Fern Street
Jurisdiction	City of Stuart
East/West Street	
North/South Street	Dixie HIghway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	1	0	1	1	0
Configuration			LTR				LTR			L	T	R		L		TR
Volume (veh/h)		5	2	30		35	4	35		69	870	27		28	344	11
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized										No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

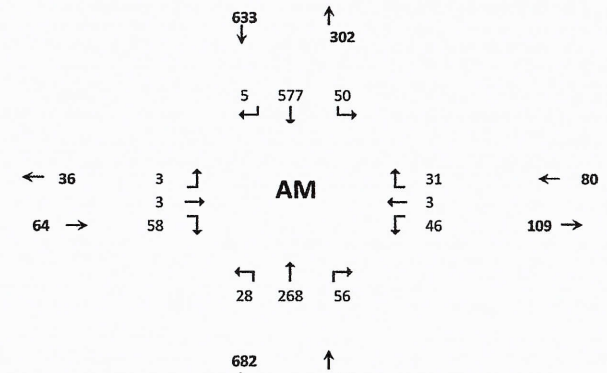
Flow Rate, v (veh/h)			41				82			77				31		
Capacity, c (veh/h)			351				205			1164				694		
v/c Ratio			0.12				0.40			0.07				0.04		
95% Queue Length, Q_{95} (veh)			0.4				1.8			0.2				0.1		
Control Delay (s/veh)			16.6				33.9			8.3				10.4		
Level of Service (LOS)			C				D			A				B		
Approach Delay (s/veh)		16.6				33.9				0.6				0.8		
Approach LOS		C				D										

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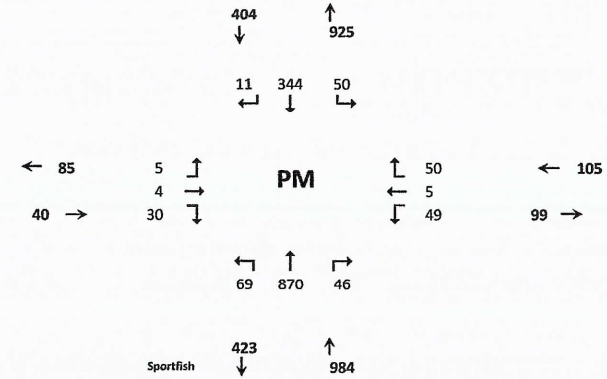
TURNING MOVEMENT VOLUME COUNTS

N/S STREET: Dixie Hwy
E/W STREET: Fern St
CONTROL:
FILENAME: Atlantic Point
COUNT DATE: 8/11/2021
DAY: Wednesday
CITY: Stuart
INTERSECTION:
REPORT DATE:
ANALYSIS YEAR: 2024 (With Project)

15 Min Period	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
7:00-7:15	3	41	3	2	90	1	0	0	10	2	0	1	153	715
7:15-7:30	3	52	5	2	94	0	1	1	5	9	1	1	174	743
7:30-7:45	2	64	7	4	128	1	0	0	8	5	0	0	219	768
7:45-8:00	5	44	7	6	93	1	1	0	9	3	0	0	169	743
8:00-8:15	9	43	4	4	101	0	1	0	13	5	0	1	181	622
8:15-8:30	5	52	5	2	115	2	0	0	14	3	0	1	199	
8:30-8:45	7	54	5	2	105	1	0	1	9	7	0	3	194	
8:45-9:00	2	20	1	2	21	1	0	0	0	1	0	0	48	
AM PEAK HOUR IS FROM:			7:30 AM TO 8:30AM											
Volumes	21	203	23	16	437	4	2	0	44	16	0	2	768	
Season Factor	26	256	29	20	551	5	3	0	55	20	0	3	968	
Growth	28	268	30	21	577	5	3	0	58	21	0	3	1015	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Atlantic Point	0	0	16	18	0	0	0	2	0	16	2	18	0	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Sportfish Marina	0	0	9	10	0	0	0	1	0	10	1	11	0	
Total	28	268	56	50	577	5	3	3	58	46	3	31	1015	



15 Min Period lanes	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
4:00-4:15	13	169	5	2	55	1	0	0	8	2	0	3	258	1008
4:15-4:30	17	181	8	0	44	1	1	0	5	4	0	2	263	1048
4:30-4:45	8	141	5	3	80	2	0	0	5	2	0	2	248	1068
4:45-5:00	13	141	2	3	68	3	0	0	4	2	0	3	239	1044
5:00-5:15	16	190	3	3	58	0	2	0	5	9	2	10	298	994
5:15-5:30	15	186	1	2	54	3	2	0	9	7	0	4	283	
5:30-5:45	15	120	8	5	63	1	0	0	2	8	0	2	224	
5:45-6:00	12	93	3	4	54	3	3	1	5	3	1	7	189	
PM PEAK HOUR IS FROM:			4:30 PM TO 5:30PM											
Volumes	52	658	11	11	260	8	4	0	23	20	2	19	1068	
Season Factor	66	829	14	14	328	10	5	0	29	25	3	24	1346	
Growth	69	870	15	15	344	11	5	0	30	26	3	25	1411	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Atlantic Point	0	0	19	22	0	0	0	2	0	14	2	16	0	
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	OUT	-	
Percentage	0%	0%	40%	45%	0%	0%	0%	5%	0%	40%	5%	45%	0%	
Sportfish Marina	0	0	12	14	0	0	0	2	0	8	1	9	0	
Total	69	870	46	50	344	11	5	4	30	49	5	50	1411	



HCS 2010 Two-Way Stop-Control Report

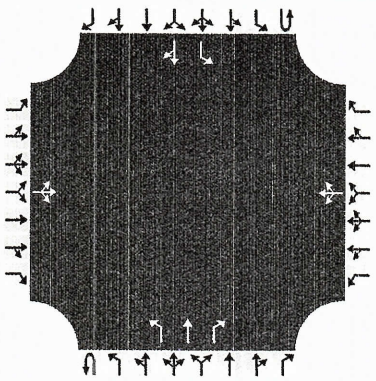
General Information

Analyst	SOR
Agency/Co.	O'R EP
Date Performed	8/30/2021
Analysis Year	2024
Time Analyzed	AM Peak Hour 2024
Intersection Orientation	North-South
Project Description	Atlantic Point Marina w/ Project

Site Information

Intersection	Dixie and Fern Street
Jurisdiction	City of Stuart
East/West Street	
North/South Street	Dixie HIghway
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	1	0	1	1	0
Configuration			LTR				LTR			L	T	R		L		TR
Volume, V (veh/h)		3	3	58		46	3	31		28	268	56		50	577	5
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			72				90			32				57		
Capacity, c (veh/h)			424				299			927				1190		
v/c Ratio			0.17				0.30			0.03				0.05		
95% Queue Length, Q_{95} (veh)			0.6				1.2			0.1				0.2		
Control Delay (s/veh)			15.2				22.2			9.0				8.2		
Level of Service, LOS			C				C			A				A		
Approach Delay (s/veh)		15.2				22.2				0.7				0.6		
Approach LOS		C				C										

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HCS 2010 Two-Way Stop-Control Report

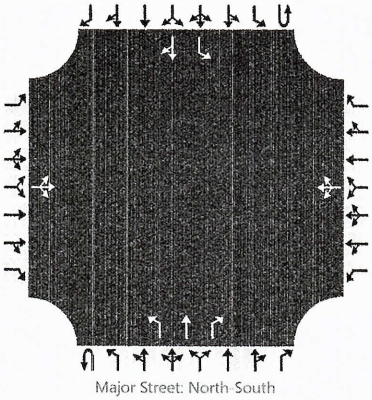
General Information

Analyst	SOR
Agency/Co.	O'R EP
Date Performed	8/30/2021
Analysis Year	2024
Time Analyzed	PM Peak Hour 2024
Intersection Orientation	North-South
Project Description	Atlantic Point Marina w/ Project

Site Information

Intersection	Dixie and Fern Street
Jurisdiction	City of Stuart
East/West Street	
North/South Street	Dixie HIghway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	1	0	1	1	0
Configuration			LTR				LTR			L	T	R		L		TR
Volume, V (veh/h)		5	4	30		50	5	49		69	870	46		50	344	11
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Left Only								1						

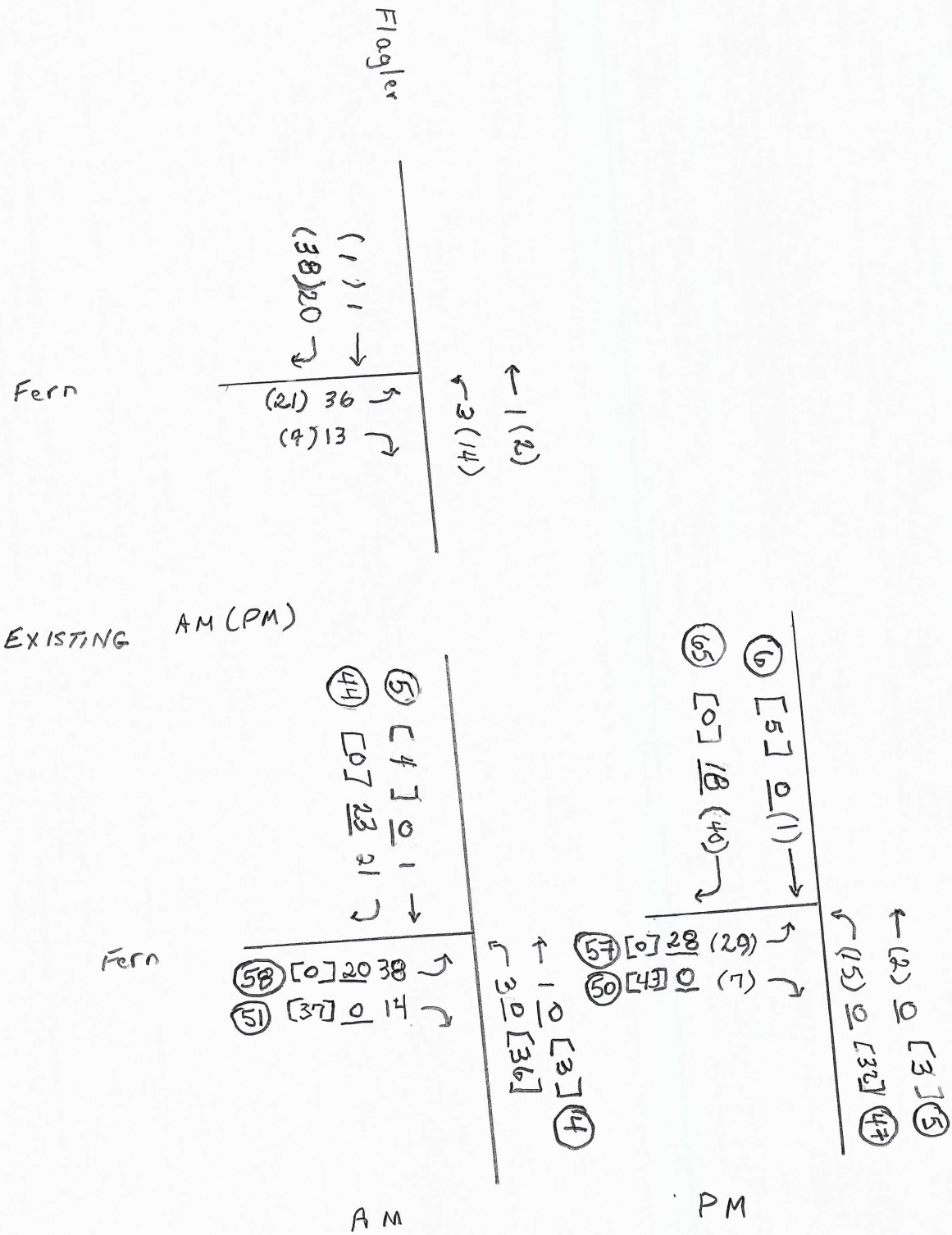
Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			43				116			77				56		
Capacity, c (veh/h)			277				195			1165				682		
v/c Ratio			0.16				0.60			0.07				0.08		
95% Queue Length, Q_{95} (veh)			0.5				3.3			0.2				0.3		
Control Delay (s/veh)			20.4				47.5			8.3				10.8		
Level of Service, LOS			C				E			A				B		
Approach Delay (s/veh)		20.4				47.5				0.6				1.3		
Approach LOS		C				E										

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Flagler
Fern
(1) 1 →
(38) 20 ↓
(21) 36 →
(7) 13 ↓
← 1 (2)
3 (14) ↓
EXISTING AM (PM)
(5) [4] 0 1 →
(44) [0] 23 21 ↓
(58) [0] 20 38 →
(51) [37] 0 14 ↓
← 1 0
3 0 [36] ↓
[3] (41)
AM
(6) [5] 0 (1) →
(65) [0] 18 (40) ↓
(57) [0] 28 (29) →
(50) [43] 0 (7) ↓
← (2) 0 [3] (5)
(15) 0 [32] (47) ↓
PM
2024 w/ Project
(X) Total
[X] project
X / sporthish
(X) Existing+growth-AM
X Existing+growth-AM
N ↑
VOLUMES
FERN / FLAGLER

2/25/22

HCS7 Two-Way Stop-Control Report

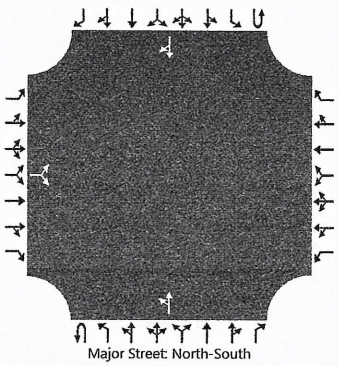
General Information

Analyst	SOR
Agency/Co.	O'REP
Date Performed	2.15.2022
Analysis Year	2024
Time Analyzed	AM Peak Hour 2024
Intersection Orientation	North-South
Project Description	Sportfish Marina

Site Information

Intersection	Flagler and Fern Street
Jurisdiction	City of Stuart
East/West Street	Fern St
North/South Street	Flagler
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		58		51						36	4				5	44
Percent Heavy Vehicles (%)		2		3						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.23						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.33						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			124							41						
Capacity, c (veh/h)			933							1549						
v/c Ratio			0.13							0.03						
95% Queue Length, Q_{95} (veh)			0.5							0.1						
Control Delay (s/veh)			9.4							7.4						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		9.4								6.7						
Approach LOS		A														

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HCS7 Two-Way Stop-Control Report

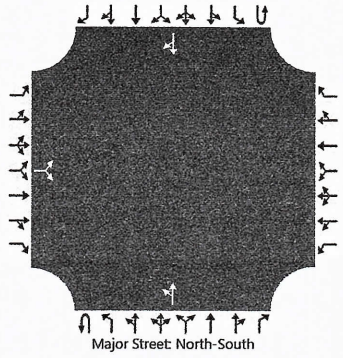
General Information

Analyst	SOR
Agency/Co.	O'REP
Date Performed	2.15.2022
Analysis Year	2024
Time Analyzed	PM Peak Hour 2024
Intersection Orientation	North-South
Project Description	Atlantic Point Marina

Site Information

Intersection	Flagler and Fern Street
Jurisdiction	City of Stuart
East/West Street	Fern St
North/South Street	Flagler
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		57		50						47	5				6	65
Percent Heavy Vehicles (%)		2		3						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.23						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.33						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			119							52						
Capacity, c (veh/h)			898							1519						
v/c Ratio			0.13							0.03						
95% Queue Length, Q_{95} (veh)			0.5							0.1						
Control Delay (s/veh)			9.6							7.5						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		9.6								6.8						
Approach LOS		A														

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Drainage Calculations
& Surface Water Management Report

For

Atlantic Point Marina
(Straticon)

Prepared By: Mark Landsman

Engineering Design & Construction, Inc.
10250 SW Village Parkway, Suite 201
Port St. Lucie, FL 34987
Board of Professional Engineers Certificate of Authorization Number 9935

March 2022



3-4-22

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1.0 Executive Summary

This project known as Atlantic Point Marina is located at 75 N.W. Flagler Avenue in Stuart FL. The proposed project is for a multi-facetted marina which includes: a wet/dry yacht and boat storage, a 6,280 S.F. water-front restaurant, pool, two-story ship store, fitness center, and many more amenities. This project's design will incorporate LID (Low-Impact Development) which is an internationally recognized stormwater management approach that protects downstream surface water quality, reduces downstream flooding, and improves overall resilience. The LID is a primary stormwater best-management practice (BMP) throughout many parts of our nation. LID uses various land planning, design practices, and technologies to preserve and protect essential aquifers and waterways such as the St Lucie River while reducing infrastructure costs. The contents of this report demonstrate 150% water quality provided in the system, a pre vs post discharge rate analysis based on 3-year/1-day, 5-year/1-day, 10-year/3-day and 25-year/3-day storm events.

2.0 History and Existing Storm Water Management System

The subject property was most recently purchased in September 2020 by Middle Island Management and Development LLC. The 7.305-acre property is currently zoned as Vacant Commercial, and the Future Land Use designation is Industrial. Over the course of history for the property, multiple structures have been constructed.

In 1926 two storage warehouses were constructed on the site totaling 4,012 square feet

In 1933 an additional storage warehouse (9,191 square feet) was added to the existing site which brought the total building square footage to 13,203 square feet.

In 1973 the site was redeveloped with a new storage warehouse with a size of 15,360 square feet. Additional warehouses were constructed on the site in 1975. Please see Appendix A for historical aerial photographs of the site.

A search for Environmental Resource permits through the South Florida Water Management District concluded that the site has no underlying environmental resource permits. Furthermore, a search of the GIS maps through the Florida Department of Environmental Protection did not provide any self-certification permits for the site either.

The site is divided into 5 drainage basins based on the existing stormwater management system and off-site flows that are conveyed through the site. Please see Appendix A for the pre-development basin map depicting the drainage basins and conveyance systems. The southernmost on-site basin (Basin 1, 3.03-acres) sheet flows stormwater over existing grades discharging directly into the St Lucie River via a washed-out low area consisting of dirt and gravel. Discharges from this basin are not treated nor attenuated. Stormwater in Basin 2 (1.31-acres) is captured in a series of inlets and directed offsite to the west discharging into the roadway swale (off-site Basin 5, 0.46-acres) via a bubble up structure. The offsite Basin 5, then conveys run-off to the north and eventually re-entering the subject property in Basin 3 (2.65-acres) via low pavement grades. Basin 3 receives stormwater from offsite Basin 5 as well as a system of interconnected inlets and pipes ultimately discharging directly to the St Lucie River via a pipe protruding through the docks to the east. Discharges from Basin 3 do not provide water quality treatment or attenuation. Discharges from Basin 4 (0.41-acres) sheet flow into the St Lucie River via a low area south of the subject parcel.

3.0 Drainage Calculation Summary

3.1 Project Description

The following Table 1 outlines the site details of the 7.31 acre developed parcel. Even though the site consists of 7.31 acres, off site flows that enter the site create a total basin area of 7.86 acres, which is divided into 5 sub basins.

Table 1-Site Details

Parcel ID	Size (acres)	Sec/Town/Range	Jurisdiction	Zone
32-37-41-004-020-00110-0	7.86*	32/37S/41E	Martin County	IND

*Drainage area includes off site flows which are directed through the site.

3.2 Datum

All elevations included on the project construction plans are in reference to the North American Vertical Datum 1988. The vertical datum conversion has been determined to be approximately 1.50 feet in the project area. This is used to convert NGVD to NAVD, in other words NGVD elevation minus 1.50 feet = NAVD elevation.

3.3 Proposed Stormwater Management System

The proposed stormwater management system for the site consists of a series of Low-Impact Development (LID) design concepts which include rain gardens, tree boxes, pervious pavement and sidewalk, a baffle box and bio-swales. Stormwater run-off from the site will either sheet flow to detention areas or be captured in a series of catch basins which are connected via underground pipes conveying to on site detention areas for treatment and attenuation.

Tree Boxes: Twelve tree boxes are proposed around the restaurant and pool area. Tree boxes are a compact bioretention system that captures and stores stormwater. The drainage calculations for the project do not consider the volume of run-off captured in the tree boxes.

Pervious Concrete/Pavement: Pervious concrete is proposed for all of the sidewalks within the project. Pervious pavement totaling 0.51 acres is proposed in the parking area west of the proposed boat barn. Pervious pavement totaling 0.15 acres is proposed for off-site parking. The pervious concrete and pavement are designed to allow for infiltration of stormwater through the surface and retained in void spaces created by the separation

of the coarse aggregate. Stormwater infiltrates through the voids and into the existing soils.

Bio-Swales: Bioswales are proposed in detention areas 1 thru 5. Bioswales are designed to capture and retain stormwater runoff, while also treating the stormwater by reducing phosphorus and nitrogen loading.

Rainwater Storage Tanks: Two 12,500-gallon storage tanks are proposed to the east of the boat barn. The storage tanks will capture a portion of the stormwater run-off generated from the roof. Stormwater in the storage tanks will then be used to wash down boats in the marina. The drainage calculations do not consider volume in the storage tanks as it is assumed that the storage tanks may be full at the onset of a rain event.

Exfiltration Trench: A 572 linear foot exfiltration trench is proposed to provide at least 0.5-inches of dry pretreatment. According to SFWMD guidelines, 0.5-inches of dry pretreatment is required for stormwater management systems that discharge to an Outstanding Florida Waterbody (OFW) which is the St Lucie River. The exfiltration trench also provides stormwater storage during a rain event, however this storage volume is excluded in the ICPR simulations. Please see Appendix B for further information on the exfiltration trench design.

Baffle Box: A nutrient separating baffle box is proposed in dry detention area 6. The baffle box will collect and store debris in a dry state as to limit the nutrient loading prior to offsite discharge. Total suspended solids will be reduced by the multiple chambers in the baffle box.

The area contributing run-off to the stormwater management system consists of 7.86 acres, which includes off-site development that contributes run-off to the system. Offsite flows conveyed through the site will be treated and attenuated, since the applicant is proposing offsite improvements which are denoted as Basins 4 and 5 in the pre-development condition.

The boat barn is a storage structure that is designed to allow for stormwater to enter through grated openings during a major rain event. The finished floor of the boat barn is at 6.00 NAVD which is equivalent to the base flood elevation. The boat barn is designed with a gravel floor that will allow infiltration into the soil. The storage component of the boat barn will have a finished floor elevation of 7.00, which is one-foot above the base flood elevation for this section of the property.

3.4 Land Use Tables

The following Tables 2 thru 6 outline the pre-development land use divided into drainage basins. Table 7 outlines the post development land use for the project. All drainage basins in the pre-development condition are consolidated into one drainage basin in the post development condition.

Table 2-Pre-Development Land Use Basin 1

Land Use	Area (ac)	Percentage of Site (%)
Impervious (Pavement Concrete)	0.16	5.43%
Building	0.35	11.65%
Pervious (not including wetlands)	2.51	83.10%
Basin 1 Area	**3.03**	**100**

Table 3-Pre-Development Land Use Basin 2

Land Use	Area (ac)	Percentage of Site (%)
Impervious (Pavement Concrete)	0.86	65.65%
Building	0.15	11.45%
Pervious (not including wetlands)	0.30	22.90%
Basin 2 Area	**1.31**	**100**

Table 4-Pre-Development Land Use Basin 3

Land Use	Area (ac)	Percentage of Site (%)
Impervious (Pavement Concrete)	1.00	37.74%
Building	0.79	29.81%
Pervious (not including wetlands)	0.86	32.45%
Basin 3 Area	**2.65**	**100**

Table 5-Pre-Development Land Use Basin 4

Land Use	Area (ac)	Percentage of Site (%)
Impervious (Pavement Concrete)	0.08	17.39%
Pervious (not including wetlands)	0.33	82.61%
Basin 4 Area	**0.41**	**100**

Table 6-Pre-Development Land Use Basin 5

Land Use	Area (ac)	Percentage of Site (%)
Impervious (Pavement Concrete)	0.28	53.92%
Pervious (not including wetlands)	0.18	46.08%
Basin 5 Area	**0.51**	**100**

Table 7-Post Development Land Use

Land Use	Area (ac)	Percentage of Site (%)
Boat Barn Including Storage	2.52	32.01%
Building	0.277	3.52%
Pervious Pavement	0.65	8.38%
Pavement	2.13	27.06%
Pervious Sidewalk	0.70	8.89%
Pool	0.09	1.14%
Stormwater Management Area	0.85	10.80%
Landscaping	0.645	8.20%
Site Area:	**7.86**	**100**

3.5 Control Elevation

The control elevation for the project is at 0.00 NAVD. A geotechnical report completed by Universal Engineering Sciences provides additional supporting data for the water table elevation of the project. The following Table 8 summarizes the ground water for the site.

Table 8-Control Elevation Calculation

Boring	Existing Elevation	Depth to Water Table	Below Surface
AB 5-2	2.5 NAVD	0 ft Below Grade	2.5
5,1	3.4 NAVD	0.4 ft Below Grade	3.0
30-1	2.5 NAVD	-3.5 ft Below Grade	6.0
40-1	2.9 NAVD	-3.1 ft Below Grade	6.0
40-2	3.0 NAVD	-3.0 ft Below Grade	6.0
40-3	3.2 NAVD	-2.8 ft Below Grade	6.0
40-4	3.3 NAVD	0 ft Below Grade	3.3
40-7	2.0 NAVD	-1.8 ft Below Grade	3.8
40-8	3.4 NAVD	0.4 ft Below Grade	3.0
40-9	2.8 NAVD	-1.2 ft Below Grade	4.0
40-10	3.1 NAVD	-2.9 ft Below Grade	6.0
40-11	3.6 NAVD	-2.4 ft Below Grade	6.0
40-12	3.7 NAVD	-3.3 ft Below Grade	7.0
50-4	3.2 NAVD	-0.2 ft Below Grade	3.4
Average	**3.04 NAVD**	**-1.67 ft Below Grade**	**4.71**

The average water table elevation based on the boring data is -1.67 NAVD. Site borings were completed on September 20th, 2021; therefore, it is expected that the groundwater elevations are the seasonal high water table elevations. A conservative approach was used in determining the control elevation for the site; therefore, the control elevation is set at 0.00 NAVD.

3.6 Tailwater

The tailwater condition for the stormwater management system is controlled by the elevations of the St. Lucie River. The following Table 9 is data gathered from the tidal data provided by NOAA. Please see Appendix A for further information on the tidal data.

Table 9-NOAA Tidal Data

Station	8722357, Stuart, St. Lucie River, FL
Control Station	8723170 Miami Beach, FL
Epoch	1983-2001
Datum	NAVD88
Mean Sea Level	-0.81
Mean High Water	-0.39
Mean Higher-High Water	-0.28

3.7 Water Quality Treatment

The project proposes to treat 150% of the required water quality treatment for an Outstanding Florida Waterbody (OFW) based on the controlling factor of 2.5 inches times the percent impervious. Water quality treatment for the site is proposed to be treated in a combination of exfiltration trenches, dry retention/detention areas, a baffle box and bio swales prior to discharging to the St Lucie River. Based on the proposed weir elevation of 3.10 NAVD, the project expects to treat 0.93 ac-ft of water quality volume. This is greater than the required 0.90 ac-ft of treatment volume based on 2.5 inches times percent impervious area. Please see Appendix B for further information regarding the drainage calculations for the site.

The following Table 10 outlines the water quality requirements for the project. The water quality treatment volume is based on the South Florida Water Management District's criteria for an Outstanding Florida Waterbody. Since the stormwater system is a detention system, the required water quality standard has been reduced by 25%.

Table 10-Water Quality Treatment Volume

	1-inch Over the Project Area	2.5-inches Times Percent Impervious
Water Quality Treatment Volume (ac-ft)	0.61	0.90

3.8 Discharge Rates

A pre vs post discharge rate analysis was conducted on the site using the 3-year/1-day, 5-year/1-day, 10-year/3-day and 25-year/3-day storm event simulations in the ICPR model. The following tables outline the results of the simulations. Please see Appendix C for further information regarding the results of the simulations.

Table 11-3-Year/1-Day Storm Event Results

Basin	Pre-Development	Post Development	Post Development Max Stage
Basin 1	1.38 cfs	3.11 cfs	4.34 NAVD
Basin 2, 3, 5	3.31 cfs	-	-
Basin 4	0.00 cfs	-	-
Total:	**4.69 cfs**	**3.11 cfs**	**-**

Table 12-5-year/1-day Storm Event Results

Basin	Pre-Development	Post Development	Post Development Max Stage
Basin 1	2.21 cfs	4.24 cfs	4.59 NAVD
Basin 2, 3, 5	4.56 cfs	-	-
Basin 4	0.00 cfs	-	-
Total:	**6.77 cfs**	**4.24 cfs**	**-**

Table 13-10-year/3-day Storm Event Results

Basin	Pre-Development	Post Development	Post Development Max Stage
Basin 1	6.83 cfs	11.48 cfs	4.89 NAVD
Basin 2, 3, 5	8.05 cfs	-	-
Basin 4	0.04 cfs	-	-
Total:	**14.92 cfs**	**11.48 cfs**	**-**

Table 14-25-year/3-day Storm Event Discharge Rates

Basin	Pre-Development	Post Development	Post Development Max Stage
Basin 1	8.60 cfs	14.37 cfs	4.98 NAVD
Basin 2, 3, 5	9.09 cfs	-	-
Basin 4	0.16 cfs	-	-
Total:	**17.85 cfs**	**14.37 cfs**	**-**

Since Basin 2 outfalls to Basin 5, which outfalls to Basin 3, only the discharge from Basin 3 to the St Lucie River is analyzed amongst these three basins. The total discharge rate for the project is the total discharge from Basins 1, 3 and 4.

3.9 Minimum Road and Parking

The minimum road and parking elevation for the site was determined based on the results of the ICPR simulation for the 10-year 1 day storm event. The maximum stage of the 10-year 1 day storm event is provided in the following Table 15. The project proposes a minimum road and parking elevation of 4.80 NAVD. Please see Appendix C for further details on the ICPR simulation inputs and results.

Table 15-Minimum Road Elevation

ICPR Result	Proposed Minimum Road
4.79 NAVD	4.80 NAVD

3.10 Minimum Finished Floor

The minimum finished floor elevation for the project is determined by the results of the ICPR simulation of the 100-year 3-day storm event. The maximum stage of the 100-year 3-day storm event is provided in the following Table 16. The project proposes minimum finished floor elevations of 7.00 NAVD and 8.00 NAVD. The storage area, existing building and fitness center will have a finished floor elevation of 7.00 NAVD. The restaurant, ship store, and fitness center will have a finished floor elevation of 8.00 NAVD. The boat barn will have a finished floor elevation of 6.00 NAVD. The boat barn will be designed with a gravel floor and vents allowing it to flood during a major storm event.

Table 16-Minimum Finished Floor Elevation

ICPR Result	Minimum FFE	Boat Barn FFE
6.39 NAVD	7.00/8.00 NAVD	6.00 NAVD

The project site is located within FEMA flood zones AE5 and AE6. The City of Stuart Land Development Code states that finished floor elevations for buildings shall be higher than 2 feet above FEMA flood zones and/or 18-inches above adjacent road crown. The proposed minimum finished floor elevation for the project meets both of those conditions.

3.11 Control Structure

The control structure for the site is a modified FDOT Type C inlet with a three-inch circular bleeder set at the control elevation of 0.00 NAVD and a 2 foot by 0.25-foot water quality slot set at 3.10 NAVD. The rim of the structure is at 4.50 NAVD which provides relief

during a major storm event. The structure is located in dry detention area 6 with an outfall via an 18-inch pipe to the St Lucie River.

3.12 City of Stuart 72-Hour Recovery Analysis

According the City of Stuart code, a stormwater management system has to demonstrate recovery of the detention volume within 72 hours for treatment for a successive rain event. At hour 73, the stage has receded to 3.13 NAVD, which is when the demonstration begins. In 72-hours (hour 145), the stage is at an elevation of 0.00 NAVD. The stormwater management system for the site is capable of recovering the entire detention volume at hour 93, which is only 20 hours from the start of the demonstration. During a successive rain event, the stormwater management system for the site is capable of providing the entire water quality treatment volume, which is the volume between the bleeder and the weir.

3.13 Dry Pre-treatment

South Florida Water Management District guidelines state that discharges into an Outstanding Florida Waterbody (OFW) such as the St Lucie River require 0.5-inches of dry pre-treatment. The proposed exfiltration trench is capable of providing 0.85 ac-feet of treatment volume. The project is required to treat 0.332 ac-feet of volume. The additional volume in the exfiltration trench is used to store additional stormwater during a rain event. Since the site has favorable Class A soils and a hydraulic conductivity (K-value) of approximately 0.000283 K cfs/ft2-ft head, infiltration is expected to occur rapidly. The storage volume in the exfiltration trench is not counted towards stormwater capacity.

3.14 Net Improvement

A net improvement analysis was completed on the project to demonstrate that total nitrogen and phosphorus loading is reduced in the post development condition. The exfiltration trench provides the necessary retention volume to achieve net improvement

for the project. The exfiltration trench is capable of providing 1.30 inches of treatment volume as the only BMP for the site. Please see Appendix B for further information on the net improvement calculations in the BMPTrains model.

4.0 Conclusion

The Atlantic Point Marina project proposes to meet all of the water quality and quantity guidelines outlined in the City of Stuart land development code and the Basis of Review by the South Florida Water Management District. The project proposes to incorporate Low Impact Development (LID) to protect the water quality of the St Lucie River as well as reducing the total nitrogren and phosphorus loads discharging into the river. The stormwater management system for the site will provide a half inch of dry pre-treatment in the form of exfiltration trenches. All supporting documentation is provided in the attached appendices.

Appendix A: Basin Maps and Basin Information

BASIN 1
Almost all storm water sheet flows directly to the South boundary of Basin 1 and directly into the St. Lucie River.

BASIN 2
Storm water sheet flows toward middle of Basin 2 and into an existing catch basin with rim elevation at 2.24' then flows through an existing 12" RCP pipe to Basin 5, where it joins with Basin 5 storm water.

BASIN 3
Stormwater sheet flows to existing catch basin with rim elevation at 2.49' then switches to channelized flow through a 12" RCP pipe to the ultimate outflow annotated on the map.

BASIN 4
Stormwater sheet flows to South-West corner of basin where it flows directly into the St. Lucie River.

BASIN 5
Storm water sheet flow, is joined by Basin 2 outflow and sheet flows into Basin 3 where the storm water will flow into existing storm water system and outflow into the St. Lucie River.

DISCHARGE RATES
3-year/1-day storm
Outflow = 4.69 cfs

5-year/1-day storm
Outflow = 6.77 cfs

10-year/3-day storm
Outflow = 14.92 cfs

25-year/3-day storm
Outflow = 17.85 cfs

F.E.C. RAILWAY

100' RIGHT OF WAY
DIXIE HIGHWAY

100' RIGHT OF WAY
FLORIDA EAST COAST RAILWAY
(PLATTED)

FLAGLER AVE.

FLAGLER AVE

BASIN 2 EXISTING OUTFALL

BASIN 4
0.41 ACRES
IMPERVIOUS = 0.08 ACRES
PERVIOUS = 0.33 ACRES
Tc = 10 min.
CN = 59

BASIN 2 LOWEST
EXISTING CATCH
BASIN EL: 2.4' NAVD

BASIN 5
0.46 ACRES
IMPERVIOUS = 0.28 ACRES
PERVIOUS = 0.18 ACRES
Tc = 10 min.
CN = 79

BASIN 2
1.31 ACRES
IMPERVIOUS (pavement and building) = 1.01 ACRES
PERVIOUS = 0.30 ACRES
Tc = 10 min.
CN = 87

BASIN 3
2.65 ACRES
IMPERVIOUS (pavement and building) = 1.79 ACRES
PERVIOUS = 0.86 ACRES
Tc = 11 min.
CN = 82

BASIN 1
3.03 ACRES
IMPERVIOUS (pavement and building) = 0.52 ACRES
PERVIOUS = 2.51 ACRES
Tc = 10 min.
CN = 57

BASIN 4 EXISTING OUTFALL

BASIN 1 EXISTING OUTFALL

BASIN 3 EXISTING OUTFALL PIPE

Rock Wall

FLOOD
ZONE
LIMITS

AE-5
AE-6
VE-8

ST. LUCIE RIVER

ST. LUCIE RIVER

(IN FEET)
1 inch = 40 ft.

ENGINEERS & SURVEYORS
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F.B.P.E. CERTIFICATE OF AUTHORIZATION 9935
L.B. CERTIFICATE OF AUTHORIZATION 8098

DRAWN BY: TMR
CHECKED BY: ML
FILENAME: 21-393 Drainage Calcs
SHEET: 1
LAYOUT
SCALE: AS SHOWN
DATE: FEBRUARY 23, 2022

REVISION COMMENTS
DATE

ATLANTIC POINT MARINA

PRE-DEVELOPMENT CONDTIONS MAP

FLORIDA
STUART

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21-393

1 OF 1

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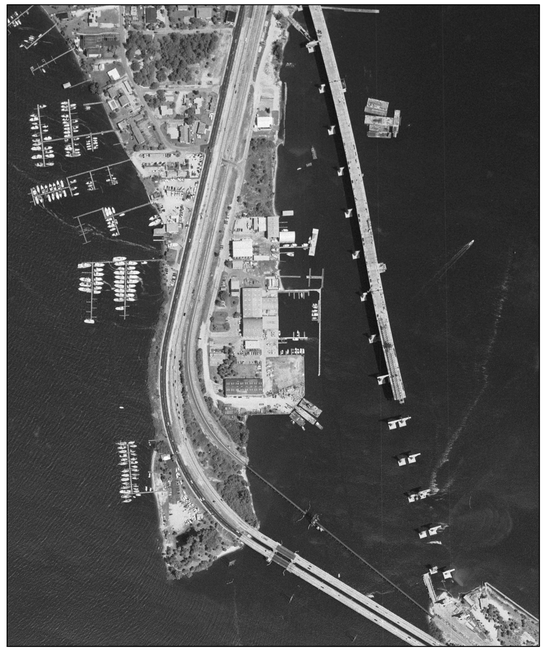
1974



1986

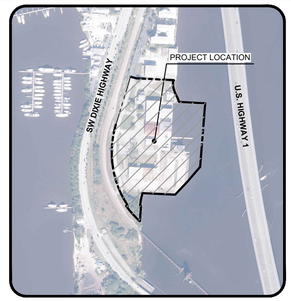


1996



2021





VICINITY MAP
SCALE: 1" = 500'

NOTE: AERIALS ARE NOT TO SCALE

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RJK — DESIGNED BY
VER — DRAWN BY
21-393 aerials.dwg — FILENAME
PRELIM ENG — LAYOUT
AS SHOWN — SCALE
2/5/22 — DATE

REVISION COMMENTS — DATE

ATLANTIC POINT MARINA

HISTORICAL AERIALS

CITY OF STUART — FLORIDA

(DATE)

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21-393

1 OF 1

Appendix B: Drainage Calculations

EXFILTRATION TRENCH DESIGN

Methodology per SFWMD ERP Permit Information Manual, March 2014

Volumetric Parameters

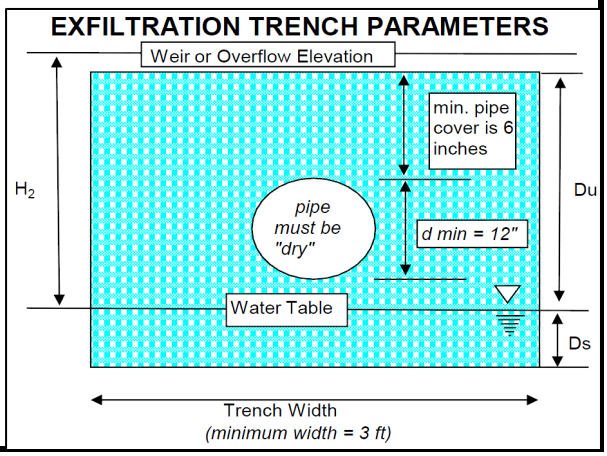
Water quality volume, V_{wq} (Ac-ft)	0.900	
Water quality volume, V_{wq} (Ac-in)	10.80	
Additional Volume, V_{add} (Ac-ft)	0.000	* Additional ***retention storage volume*** as required to meet water quality standards
Additional Volume, V_{add} (Ac-in)	0.00	
Total exfiltration volume, V (Ac-ft)	0.90	
Total exfiltration volume, V (Ac-in)	10.80	

Basin Hydrology & Soil Parameters

Hydraulic conductivity, K (cfs/ft^2-ft head)	2.83E-04	* From geotechnical report
Basin area, A (Ac)	7.87	
Basin soil storage, S (in)	9.00	* Input S value from basin calcs sheet
Basin curve number, CN	53	
Design rainfall, P (in)	11.00	* Input design storm rainfall
Exfiltration storage depth, d_{exf} (in)	1.37	= V / A
Exfiltration rainfall depth, P_{exf} (in)	9.63	= P - d_{exf}
Exfiltration soil storage, S_{exf} (in)	10.37	= S + d_{exf}
Exfiltration curve number, CN_{exf}	49	* Adjusted CN for ICPR Routing Model

Exfiltration Trench Parameters

Trench top elevation, EL_{top} (ft-datum)	3.50
Bubble Up-Dry Detention, EL_{inv} (ft-datum) (Weir)	5.00
Trench bottom elevation, El_{bot} (ft-datum)	0.00
Trench width, W (ft)	6.00
Wet Season High Water Table (ft-datum)(CE)	0.00
Head on saturated surface, H_2 (ft)	5.00
Unsaturated trench depth, D_u (ft)	3.50
Saturated trench depth, D_s (ft)	0.00
Perforated pipe invert, (ft-datum)	1.00
Perforated pipe diameter, (in)	24



Governing Equations

If Ds < Du, and W < 2*(Ds + Du) ➡ Yes Yes ➡

$$L = \frac{V}{k \times (H2 * W + 2 * H2 * Du - Du^2 + 2 * H2 * Ds) + (1.39 \times 10^{-4} * W * Du)}$$

If Ds > Du, or W > 2*(Ds + Du) ➡ No No ➡

$$L = \frac{V}{k \times (2 * H2 * Du - Du^2 + 2 * H2 * Ds) + (1.39 \times 10^{-4} * W * Du)}$$

Calculations and Results

Calculated trench length required, L (ft)	605.1
Proposed trench length, L (ft)	572.0
Volume treated, V (Ac-ft)	0.85
Volume remaining to be treated (Ac-ft)	0.05
Proposed storage depth, d (in)	1.30

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GENERAL SITE INFORMATION: V 8.6

GO TO INTRODUCTION PAGE

3/3/2022

Blue Numbers =	Input data
Red Numbers =	Calculated or Carryover

HELP Rainfall

Select the appropriate Meteorological Zone, input the appropriate Mean Annual Rainfall amount and select the type of analysis

NAME OF PROJECT

Atlantic Point

VIEW ZONE MAP

Meteorological Zone (Please use zone map): CLICK ON CELL BELOW TO SELECT — Zone 2

Mean Annual Rainfall (Please use rainfall map): 55.00 Inches

VIEW MEAN ANNUAL RAINFALL MAP

Type of analysis: CLICK ON CELL BELOW TO SELECT — Net improvement

Treatment efficiency (N, P) (ex 80 70 (no decimal points) **use only for specified removal efficiency**): % %

GO TO WATERSHED CHARACTERISTICS

Select the STORMWATER TREATMENT ANALYSIS Button below to begin analyzing the effectiveness of Best Management Practices.

Model documentation and example problems.

STORMWATER TREATMENT ANALYSIS

Systems available for analysis:
Retention Basin with option for calculating effluent concentration
Wet Detention
Exfiltration Trench
Pervious Pavement
Stormwater Harvesting
Biofiltration
Greenroof
Rainwater Harvesting
Managed Aquatic Plants Detention
Vegetated Natural Buffer
Vegetated Filter Strip
Swale
Rain Garden
Tree Well
Lined reuse pond
User Defined BMP

There is a user's manual for the BMPTRAINS model. It can be downloaded from www.stormwater.ucf.edu. The results from the example problems shown in the manual however may not reflect current model results due to ongoing updates of the model.

RESET INPUT FOR STORMWATER TREATMENT ANALYSIS

METHODOLOGY FOR CALCULATING REQUIRED TREATMENT EFFICIENCY

METHODOLOGY FOR RETENTION SYSTEMS

METHODOLOGY FOR WET DETENTION SYSTEMS

METHODOLOGY FOR GREENROOF SYSTEMS

METHODOLOGY FOR WATER HARVESTING SYSTEMS

WATERSHED CHARACTERISTICS V 8.6

GO TO STORMWATER TREATMENT ANALYSIS

Blue Numbers = Input data | Red Numbers = Calculated

LAND USES/EMC

SELECT CATCHMENT CONFIGURATION 3/3/2022

CLICK ON CELL BELOW TO SELECT CONFIGURATION

A - Single Catchment

VIEW CATCHMENT CONFIGURATION

GO TO GENERAL SITE INFORMATION PAGE

For comingling, the off-site catchment must be upstream. The delay is only for retention BMPs and must be used in hours as measured by the time of concentration at a one inch/hour rain

COMINGLING | MULTI-LAND USE

VIEW AVERAGE ANNUAL RUNOFF "C" Factor

VIEW EMC & FLUCCS

GO TO GIS LANDUSE DATA

CATCHMENT NO.1

Delay [hrs] | CATCHMENT NO.1 NAME: Atlantic Point

max delay = 15 hrs.

Pre-development land use:	CLICK ON CELL BELOW TO SELECT: Light Industrial: TN=1.200 TP=0.260
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT: Light Industrial: TN=1.200 TP=0.260
with default EMCs	
Total pre-development catchment area:	7.860 AC
Total post-development catchment or for BMP analysis:	7.860 AC
Pre-development Non DCIA CN:	72.00
Pre-development DCIA percentage:	46.80 %
Post-development Non DCIA CN:	90.00
Post-development DCIA percentage:	72.10 %
Estimated BMP Area (No loading from this area)	0.850 AC

OVERWRITE DEFAULT CONCENTRATIONS USING:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

Average annual pre runoff volume:	14.913 ac-ft/year
Average annual post runoff volume (note no BMP area):	20.908 ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**	22.071 kg/year
Pre-development Annual Mass Loading - **Phosphorus:**	4.782 kg/year
Post-development Annual Mass Loading - **Nitrogen:**	30.943 kg/year
Post-development Annual Mass Loading - **Phosphorus:**	6.704 kg/year

CATCHMENT NO.2

CATCHMENT NO.2 NAME:

Pre-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Total pre-development catchment area:	AC
Total post-development catchment or BMP analysis area:	AC
Pre-development Non DCIA CN:	
Pre-development DCIA percentage:	%
Post-development Non DCIA CN:	
Post-development DCIA percentage:	%
Estimated BMP Area (No loading from this area)	AC

OVERWRITE DEFAULT CONCENTRATIONS:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

Average annual pre runoff volume:	ac-ft/year
Average annual post runoff volume (note no BMP area):	ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**	kg/year
Pre-development Annual Mass Loading - **Phosphorus:**	kg/year
Post-development Annual Mass Loading - **Nitrogen:**	kg/year
Post-development Annual Mass Loading - **Phosphorus:**	kg/year

CATCHMENT NO.3

CATCHMENT NO.3 NAME:

Pre-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	PLEASE SELECT LAND USE:
Total pre-development catchment area:	AC
Total post-development catchment or BMP analysis area:	AC
Pre-development Non DCIA CN:	
Pre-development DCIA percentage:	%
Post-development Non DCIA CN:	
Post-development DCIA percentage:	%
Estimated BMP Area (no loading from this area)	AC

OVERWRITE DEFAULT CONCENTRATIONS:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

Average annual pre runoff volume:	ac-ft/year
Average annual post runoff volume (note no BMP area):	ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**	kg/year
Pre-development Annual Mass Loading - **Phosphorus:**	kg/year
Post-development Annual Mass Loading - **Nitrogen:**	kg/year
Post-development Annual Mass Loading - **Phosphorus:**	kg/year

CATCHMENT NO.4

CATCHMENT NO.4 NAME:

Pre-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	
Post-development land use:	CLICK ON CELL BELOW TO SELECT
with default EMCs	PLEASE SELECT LAND USE:
Total pre-development catchment area:	AC
Total post-development catchment or BMP analysis area:	AC
Pre-development Non DCIA CN:	
Pre-development DCIA percentage:	%
Post-development Non DCIA CN:	
Post-development DCIA percentage:	%
Estimated BMP Area (no loading from this area)	AC

OVERWRITE DEFAULT CONCENTRATIONS:

	PRE:	POST:
EMC(N):	mg/L	mg/L
EMC(P):	mg/L	mg/L

USE DEFAULT CONCENTRATIONS

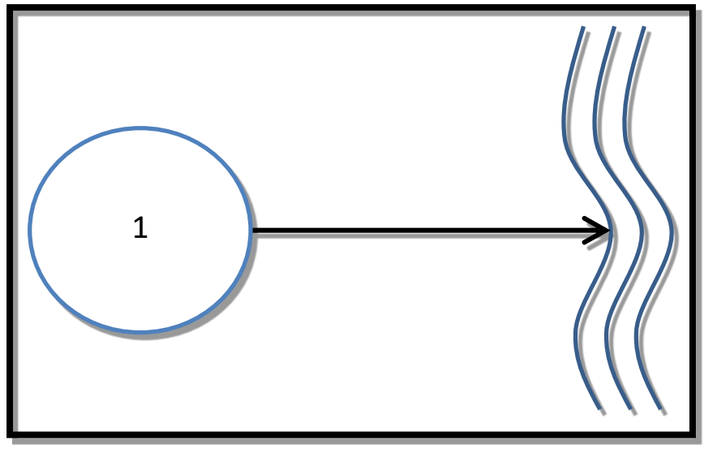
Average annual pre runoff volume:	ac-ft/year
Average annual post runoff volume (note no BMP area):	ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**	kg/year
Pre-development Annual Mass Loading - **Phosphorus:**	kg/year
Post-development Annual Mass Loading - **Nitrogen:**	kg/year
Post-development Annual Mass Loading - **Phosphorus:**	kg/year

STORMWATER TREATMENT ANALYSIS:	V 8.6	GO TO GENERAL SITE INFORMATION PAGE	Blue Numbers =	Input data
			Red Numbers =	Calculated

If not done, specify pre- and post-development watershed characteristics.

3/3/2022

GO TO WATERSHED CHARACTERISTICS



Total Required Treatment Efficiency:

Required Treatment Eff (**Nitrogen**):	29	%
Required Treatment Eff (**Phosphorus**):	29	%

Select one of the BMPs below to analyze efficiency or review the summary data.

RETENTION BASIN	WET DETENTION / MAP	EXFILTRATION TRENCH	RAIN GARDEN / depression storage	SWALE	USER DEFINED BMP
PERVIOUS PAVEMENT	STORMWATER HARVESTING	FILTRATION	View Media Mixes	NOTE !!!: All individual system must be sized prior to being analyzed in conjunction with other systems. Please read instructions in the CATCHMENT AND TREATMENT SUMMARY RESULTS tab for more information.	
GREENROOF	RAINWATER HARVESTING	LINED REUSE POND & UNDERDRAIN INPUT	GO TO COST ANALYSIS WORKSHEET		
VEGETATED NATURAL BUFFER	VEGETATED FILTER STRIP	TREE WELL	CATCHMENT AND TREATMENT SURFACE		

EXFILTRATION TRENCH:

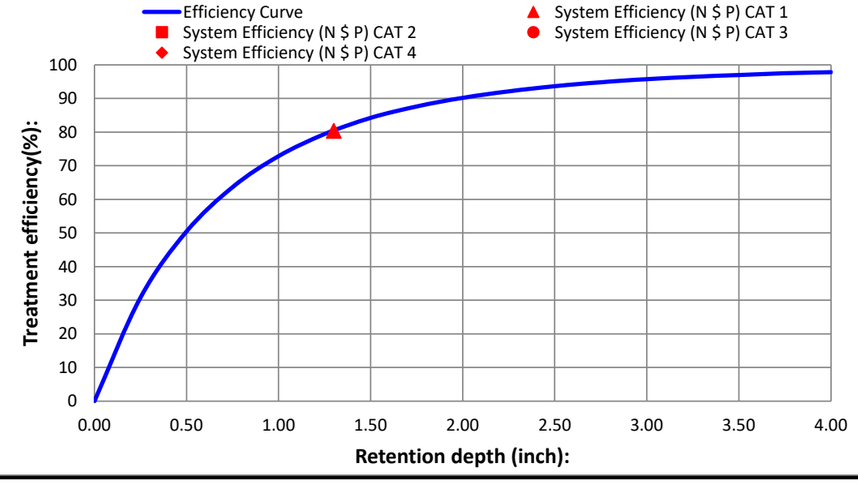
3/3/2022 V 8.6

EXFILTRATION TRENCH SERVING: Atlantic Point

Note: There are loadings from this BMP area above the trench.	Atlantic Point	Catchment 2	Catchment 3	Catchment 4	
Contributing catchment area:	7.860	0.000	0.000	0.000	ac
Required treatment efficiency (**Nitrogen**):	28.672				%
Required treatment efficiency (**Phosphorus**):	28.672				%
Required retention for the entire catchment to meet required efficiency:	0.232	0.000	0.000	0.000	in
Required water quality retention volume:	0.152	0.000	0.000	0.000	ac-ft

This is an underground system, thus there is no surface area loading reduction for the area of exfiltration

Provided retention depth(0.1-3.99 inches):	1.300				in
Provided treatment efficiency (**Nitrogen**):	80.405	0.000	0.000	0.000	%
Provided treatment efficiency (**Phosphorus**):	80.405	0.000	0.000	0.000	%
Remaining treatment efficiency needed (**Nitrogen**):	0.000				%
Remaining treatment efficiency needed (**Phosphorus**):	0.000				%
Remaining retention depth needed if retention:	0.000	0.000	0.000	0.000	in



NOTE FOR TREATMENT EFFICIENCY GRAPH:

The purpose of this graph is to help illustrate the treatment efficiency of the retention system as the function of retention depth. The graph illustrates that there is a point of diminished return as the retention depth is substantially increased. Therefore, to provide the most economical BMP treatment system, other alternatives such as "treatment trains" and compensatory treatment should be considered.

CATCHMENTS AND TREATMENT SURFACE DISCHARGE SUMMARY V 8.6

CALCULATION METHODS:

1. The effectiveness of each BMP in a single catchment is converted to an equivalent capture volume.
2. Certain BMP treatment train combinations have not been evaluated and in practice they are at this time not used, an example is a greenroof following a tree well.
3. Wet detention is last when used in a single catchment with other BMPs, except when followed by filtration

PROJECT TITLE	Atlantic Point	Optional Identification	Stormwater Management System	
	Atlantic Point	Catchment 2	Catchment 3	Catchment 4
BMP Name	Exfiltration Trench			
BMP Name				
BMP Name				

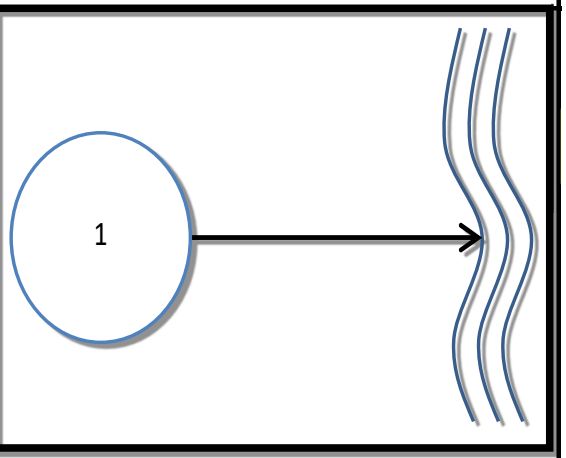
Surface Water Discharge Summary Performance of Entire Watershed

Catchment Configuration	A - Single Catchment		3/3/2022
Nitrogen Pre Load (kg/yr)	22.07		BMPTRAINS MODEL
Phosphorus Pre Load (kg/yr)	4.78		
Nitrogen Post Load (kg/yr)	30.94		
Phosphorus Post Load (kg/yr)	6.70		
Target Load Reduction (N) %	29		
Target Load Reduction (P) %	29		
Target Discharge Load, N (kg/yr)	21.97		
Target Discharge Load, P (kg/yr)	4.76		
Provided Overall Efficiency, N (%):	80		
Provided Overall Efficiency, P (%):	80		
Discharged Load, N (kg/yr & lb/yr):	6.06	13.35	
Discharged Load, P (kg/yr & lb/yr):	1.31	2.89	
Load Removed, N (kg/yr & lb/yr):	24.88	54.80	
Load Removed, P (kg/yr & lb/yr):	5.39	11.87	

Treatment Objectives or Target for

TN MET

TP MET



Pre Development Stormwater Calculations - Pre-Basin 1

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	0.35	0.00	0.35
Pavement =	0.16	0.00	0.16
Wet Detention Area (Lake) =	0.00	0.00	0.00
Developed Compacted Open Space =	0.00	2.51	2.51
TOTAL =	0.52	2.51	3.03

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	3.05
Avg. Seasonal High Water Table =	-1.67
Control Elevation =	0.00
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Pavement =	0.16	N/A	98	16	Impervious
Developed Compacted Open Space =	2.51	A	49	123	Open - Good
Buildings =	0.35	N/A	98	34	Impervious
TOTAL =	3.03			174	
			Weighted CN =	57	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8

**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :	n =	0.011	coefficient
	P_2 =	5.00	inches
	s =	0.003	foot/foot
	L =	300	feet

T_{1A} =	0.0831	hour	=	4.99	minutes
T_t =	0.0831	hour	=	5.0	

Parameters for T_{1b} :	n =	0.400	coefficient
	P_2 =	5.00	inches
	s =	0.003	foot/foot
	L =	0	feet

T_{1B} =	0.0000	hour	=	0.00	minutes
T_t =	0.0000	hour	=	0.0	

Parameter for T2:

V= 0.88372296

V=	1.91	
s =	0.003	foot/foot
L =	17	feet

T_1 =	0.0025	hour	=	0.15	minutes
T_t =	0.0025	hour	=	1.0	

TC= total T1A+T1B+T2 6.0 Used 10 minutes

Pre Development - Stage Storage Calculations - Pre-Basin 1

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft)											
					2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
Asphalt & Concrete	Linear	0.16	4.50	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.13	0.21	0.30	0.38
Pervious	Linear	2.51	2.40	6.10	0.00	0.00	0.12	0.41	0.87	1.50	2.29	3.26	4.40	5.65	6.90	8.16
SURFACE STORAGE		2.67		Totals:	0.00	0.00	0.12	0.41	0.87	1.50	2.31	3.32	4.53	5.86	7.20	8.53
Building Pads		0.35	*Not included in Stage-storage calculations													
	Total:	3.03														

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
2.00	0.00
2.50	0.00
3.00	0.12
3.50	0.41
4.00	0.87
4.50	1.50
5.00	2.31
5.50	3.32
6.00	4.53
6.50	5.86
7.00	7.20
7.50	8.53

Pre Development Stormwater Calculations - Pre-Basin 2

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	0.15	0.00	0.15
Pavement =	0.86	0.00	0.86
Developed Compacted Open Space =	0.00	0.30	0.30
TOTAL =	1.01	0.30	1.31

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	3.05
Avg. Seasonal High Water Table =	-1.67
Control Elevation =	0.00
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Pavement =	0.86	N/A	98	84	Impervious
Developed Compacted Open Space =	0.30	A	49	15	Open - Good
Buildingss =	0.15	N/A	98	15	Impervious
TOTAL =	1.31			114	
			Weighted CN =	87	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8

**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

T_{cf} = Time of Concentrated Flow (hour)
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :	n =	0.011	coefficient	
	P_2 =	5.00	inches	
	s =	0.007	foot/foot	
	L =	175	feet	
T_{1A} =	0.0385	hour	=	2.31 minutes
T_t =	0.0385	hour	=	3.0
Parameters for T_{1b} :	n =	0.011	coefficient	
	P_2 =	5.00	inches	
	s =	0.001	foot/foot	
	L =	0	feet	
T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameter for T2:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	117	feet

T_1 =	0.0227	hour	=	1.36 minutes
T_t =	0.0227	hour	=	2.0

TC= total T1A+T1B+T2 5.0 Used 10 Minutes

Pre Development - Stage Storage Calculations - Pre-Basin 2

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft)											
					2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
Asphalt & Concrete	Linear	0.86	2.40	5.30	0.00	0.05	0.18	0.38	0.65	1.00	1.41	1.84	2.27	2.70	3.13	3.56
Pervious	Linear	0.30	4.10	5.40	0.00	0.00	0.00	0.00	0.02	0.09	0.23	0.38	0.53	0.68	0.83	0.98
SURFACE STORAGE		1.16		Totals:	0.00	0.05	0.18	0.38	0.67	1.09	1.64	2.22	2.80	3.37	3.95	4.53
Building Pads		0.15	*Not included in Stage-storage calculations													
	Total:	1.31														

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
2.50	0.00
3.00	0.05
3.50	0.18
4.00	0.38
4.50	0.67
5.00	1.09
5.50	1.64
6.00	2.22
6.50	2.80
7.00	3.37
7.50	3.95
8.00	4.53

Pre Development Stormwater Calculations - Pre-Basin 3

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	0.79	0.00	0.79
Pavement =	1.00	0.00	1.00
Wet Detention Area (Lake) =	0.00	0.00	0.00
Developed Compacted Open Space =	0.00	0.86	0.86
TOTAL =	1.79	0.86	2.65

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	3.05
Avg. Seasonal High Water Table =	-1.67
Control Elevation =	0.00
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Pavement =	1.00	N/A	98	98	Impervious
Developed Compacted Open Space =	0.86	A	49	42	Open - Good
Buildings =	0.79	N/A	98	77	Impervious
TOTAL =	2.65			217	
			Weighted CN =	82	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8
**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

T_{cf} = Time of Concentrated Flow (hour)
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :

n =	0.011	coefficient
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	40	feet

T_{1A} =	0.0126	hour	=	0.75 minutes
T_t =	0.0126	hour	=	1.0

Parameters for T_{1b} :

n =	0.011	coefficient Woods, Light underbrush
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	26	feet

T_{1B} =	0.0088	hour	=	0.53 minutes
T_t =	0.0088	hour	=	1.0

Parameters for T_{1c} :

n =	0.011	coefficient Woods, Light underbrush
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	92	feet

T_{1B} =	0.0244	hour	=	1.46 minutes
T_t =	0.0244	hour	=	2.0

Parameter for T2:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	102	feet

T_1 =	0.0198	hour	=	1.19	minutes
T_t =	0.0198	hour	=	2.0	

Parameters for T_{1d} :

n =	0.011	coefficient	Woods, Light underbrush
P_2 =	5.00	inches	
s =	0.002	foot/foot	
L =	80	feet	

T_{1B} =	0.0339	hour	=	2.04	minutes
T_t =	0.0339	hour	=	3.0	

Parameter for T2b:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	108	feet

T_1 =	0.0210	hour	=	1.26	minutes
T_t =	0.0210	hour	=	2.0	

TC= total T1A+T1B+T1C+T2+T1D+T2B 11.0

Pre Development - Stage Storage Calculations - Pre-Basin 3

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft)											
					1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50
Asphalt & Concrete	Linear	1.00	1.20	4.00	0.00	0.02	0.11	0.30	0.58	0.94	1.39	1.89	2.39	2.89	3.38	3.88
Pervious	Linear	0.86	1.20	4.30	0.00	0.01	0.09	0.23	0.45	0.73	1.09	1.51	1.94	2.37	2.80	3.23
SURFACE STORAGE		1.86		Totals:	0.00	0.03	0.20	0.53	1.03	1.67	2.48	3.40	4.32	5.25	6.18	7.11
Building Pads		0.79	*Not included in Stage-storage calculations													
	Total:	2.65														

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
1.00	0.00
1.50	0.03
2.00	0.20
2.50	0.53
3.00	1.03
3.50	1.67
4.00	2.48
4.50	3.40
5.00	4.32
5.50	5.25
6.00	6.18
6.50	7.11

Pre Development Stormwater Calculations - Pre-Basin 4

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	0.00	0.00	0.00
Pavement =	0.08	0.00	0.08
Wet Detention Area (Lake) =	0.00	0.00	0.00
Developed Compacted Open Space =	0.00	0.33	0.33
TOTAL =	0.08	0.33	0.41

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	3.05
Avg. Seasonal High Water Table =	-1.67
Control Elevation =	0.00
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Pavement =	0.08	N/A	98	8	Impervious
Developed Compacted Open Space =	0.33	A	49	16	Open - Good
Buildings =	0.00	N/A	98	0	Impervious
TOTAL =	0.41			24	
			Weighted CN =	59	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8
**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

T_{cf} = Time of Concentrated Flow (hour)
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :

n =	0.011	coefficient
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	0	feet

T_{1A} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1b} :

n =	0.011	coefficient Woods, Light underbrush
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	0	feet

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1c} :

n =	0.011	coefficient Woods, Light underbrush
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	0	feet

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameter for T2:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	0	feet

T_1 =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1d} :	n =	0.011	coefficient	Woods, Light underbrush	
	P_2 =	5.00	inches		
	s =	0.002	foot/foot		
	L =	0	feet		

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameter for T2b:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	0	feet

T_1 =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

TC= total T1A+T1B+T1C+T2+T1D+T2B 10.0

Pre Development - Stage Storage Calculations - Pre-Basin 4

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft)											
					1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50
Asphalt & Concrete	Linear	0.08	1.00	5.00	0.00	0.00	0.01	0.02	0.04	0.06	0.09	0.13	0.16	0.21	0.25	0.29
Pervious	Linear	0.38	1.00	5.00	0.00	0.01	0.05	0.11	0.19	0.30	0.43	0.58	0.76	0.95	1.14	1.33
SURFACE STORAGE		0.46		Totals:	0.00	0.01	0.06	0.13	0.23	0.36	0.52	0.71	0.92	1.16	1.39	1.62
Building Pads		0.00	*Not included in Stage-storage calculations													
	Total:	0.46														

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
1.00	0.00
1.50	0.01
2.00	0.06
2.50	0.13
3.00	0.23
3.50	0.36
4.00	0.52
4.50	0.71
5.00	0.92
5.50	1.16
6.00	1.39
6.50	1.62

Pre Development Stormwater Calculations - Pre-Basin 5

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)
Buildings =	0.00	0.00	0.00
Pavement =	0.28	0.00	0.28
Wet Detention Area (Lake) =	0.00	0.00	0.00
Developed Compacted Open Space =	0.00	0.18	0.18
TOTAL =	0.28	0.18	0.46

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	3.05
Avg. Seasonal High Water Table =	-1.67
Control Elevation =	0.00
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Pavement =	0.28	N/A	98	27	Impervious
Developed Compacted Open Space =	0.18	A	49	9	Open - Good
Buildings =	0.00	N/A	98	0	Impervious
TOTAL =	0.46			36	
			Weighted CN =	79	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8
**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

T_{cf} = Time of Concentrated Flow (hour)
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :

n =	0.011	coefficient
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	0	feet

T_{1A} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1b} :

n =	0.011	coefficient Woods, Light underbrush
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	0	feet

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1c} :

n =	0.011	coefficient Woods, Light underbrush
P_2 =	5.00	inches
s =	0.006	foot/foot
L =	0	feet

T_{1B} =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameter for T2:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	0	feet

T_1 =	0.0000	hour	=	0.00 minutes
T_t =	0.0000	hour	=	0.0

Parameters for T_{1d} :	n =	0.011	coefficient	Woods, Light underbrush
	P_2 =	5.00	inches	
	s =	0.002	foot/foot	
	L =	0	feet	

T_{1B} =	0.0000	hour	=	0.00	minutes
T_t =	0.0000	hour	=	0.0	

Parameter for T2b:

V= 0.51021769

V=	1.43	
s =	0.001	foot/foot
L =	0	feet

T_1 =	0.0000	hour	=	0.00	minutes
T_t =	0.0000	hour	=	0.0	

TC= total T1A+T1B+T1C+T2+T1D+T2B 10.0

Pre Development - Stage Storage Calculations - Pre-Basin 5

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft)											
					1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00
Asphalt & Concrete	Linear	0.28	2.10	3.20	0.00	0.00	0.02	0.10	0.23	0.37	0.51	0.65	0.78	0.92	1.06	1.20
Pervious	Linear	0.23	1.50	3.70	0.00	0.01	0.05	0.12	0.20	0.32	0.43	0.54	0.65	0.77	0.88	0.99
SURFACE STORAGE		0.50		Totals:	0.00	0.01	0.07	0.22	0.44	0.69	0.94	1.19	1.44	1.69	1.94	2.19
Building Pads		0.00	*Not included in Stage-storage calculations													
	Total:	0.50														

ICPR Volume to Area Conversion

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
1.50	0.00
2.00	0.01
2.50	0.07
3.00	0.22
3.50	0.44
4.00	0.69
4.50	0.94
5.00	1.19
5.50	1.44
6.00	1.69
6.50	1.94
7.00	2.19

Pre Development Stormwater Calculations - Post Basin

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022
Revised:

Land Use Table

Use	Imp. (ac)	Pervious (ac)	Total (ac)	
Boat Barn =	2.520	0.000	2.52	*Includes Storage Area
Buildings =	0.277	0.000	0.28	*Includes all buildings and Lift Station
Pervious Pavement =	0.325	0.325	0.65	*50% Pervious Credit for Pervious Pavement
Pavement =	2.125	0.000	2.13	
Pervious Sidewalk =	0.350	0.350	0.70	*50% Pervious Credit for Pervious Concrete
Pool and Pool Deck =	0.090	0.000	0.09	
Dry Detention Area =	0.000	0.850	0.85	
Landscape Area =	0.000	0.645	0.65	
TOTAL =	5.69	2.17	7.86	

Stage-Area Table

:see stage-storage chart for information.

Find Curve Number:

Avg. Pervious Ground El. =	6.50
Avg. Seasonal High Water Table =	-1.67
Control Elevation =	0.00
Distance to Water Table =	4.00

Land Use and CN Calcs

Land Use	Area	Soil Grp	CN	Product	NRCS Cover
Buildings =	0.28	N/A	98	27	Impervious
Boat Barn =	2.52	N/A	98	247	Impervious
Pervious Pavement =	0.66	A	76	50	Pervious/Impervious
Pavement =	2.13	N/A	98	208	Impervious
Pervious Sidewalk =	0.70	A	76	53	Pervious/Impervious
Pool =	0.09	N/A	98	9	Impervious
Dry Detention Area =	0.85	A	98	83	Drainage
Landscape =	0.65	A	49	32	Open - Good
TOTAL =	7.87			710	
			Weighted CN =	90	

* Stormwater BMP Area considered impervious with CN = 98, per SFWMD ERP Manual 5.7.8
**Wetlands CN Based on reccomended design value from SJRWMD Technical Publication 85-5 "A Guide to SCS Runoff Procedures"

Time of Concentration

The following formulas are per the SCS "Urban Hydrology for Small Watersheds" Technical Publication-55.

Sheet flow occurs over plane surfaces.

$$T_{sf} = \frac{.007 * (n * L)^{.8}}{(P_2)^{.5} * (s)^{.4}}$$

T_{sf} = Time of Sheet Flow (hour)
n = Mannings Roughness Coefficient
P_2 = 2-year 24-hour Rainfall (inches)
s = Slope of Hydraulic Grade (feet/feet)
L = Flow Length (feet)

After 300-feet sheet flow usually becomes shallow concentrated flow.

(Unpaved) $V = 16.1345 * (s)^{.5}$
(Paved) $V = 20.3282 * (s)^{.5}$

s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)

Use the velocity to solve for travel time.

$$T_t = \frac{L}{3600 * V}$$

T_t = Travel Time (hour)
L = Flow Length (feet)
V = Average Velocity (feet/second)

When determining flows in open channels use Manning's equation.

$$V = \frac{1.49 * r^{.67} * s^{.5}}{n}$$

r = Hydraulic Radius (feet) equal to a/p_w
s = Slope of Hydraulic Grade (feet/feet)
V = Average Velocity (feet/second)
n = Mannings Roughness Coefficient
a = cross sectional area (sq.ft.)
p_w = wetted perimeter (feet)

* Use the velocity to solve for travel time with the formula above.

This following calculations for the project have a segmented travel flow line.

T_1 = On site (sheet flow).

Parameters for T_{1A} :	n =	0.011	coefficient
	P_2 =	5.00	inches
	s =	0.001	foot/foot
	L =	300	feet

T_{1A} =	0.1290	hour	=	7.74	minutes
T_t =	0.1290	hour	=	8.0	

Parameters for T_{1b} :	n =	0.400	coefficient
	P_2 =	5.00	inches
	s =	0.003	foot/foot
	L =	0	feet

T_{1B} =	0.0000	hour	=	0.00	minutes
T_t =	0.0000	hour	=	0.0	

Parameter for T2:

V= 1.14088144

V=	1.14	
s =	0.005	foot/foot
L =	900	feet

T_1 =	0.2193	hour	=	13.16	minutes
T_t =	0.2193	hour	=	14.0	

TC= total T1A+T1B+T2 22.0

Post Development Water Quality Calculations - Post Basin

Project: Atlantic Point
Project #: 21-393

Engineer MDL
Date 2/23/2022
Revised:

1-inch Over the Project Area - per SFWMD

(Treated Volume) 1-inch * 1-ft/12-in * 7.86 (PROJECT AREA (EXCLUDES UNDEV/WETLANDS)) = 0.66 (TREATED VOLUME) ac-ft

2.5-inches Times the Percent Impervious - per SFWMD

(Site Area) 7.86 (PROJECT AREA (AC)) - (0.00 (LAKES (AC)) + 2.80 (ROOFS (AC))) = 5.06 (SITE AREA) ac

(Impervious Area) 5.06 (SITE AREA (AC)) - 2.58 (PERVIOUS AREA (AC)) = 2.48 (IMPERVIOUS AREA) ac

(% Impervious) IMPERVIOUS AREA * 100% / SITE AREA (AC) = 49.01%

(2.5-in * % Imp.) 2.5-inches * 49.01% (PERCENT IMPERVIOUS) = 1.23 (INCHES TO BE TREATED)

(Treated Volume) 1.23 (TREATED (IN)) * 1-ft/12-in * 7.86 (PROJECT AREA - LAKES (AC)) = 0.80 (TREATED VOLUME)

	SFWMD - STND	OFW - 150%	
Required Wet Detention =	**0.80**	**1.20**	
Required Dry Detention =	**0.60**	**0.90**	
Required Retention =	**0.40**	**0.60**	
	2.5" Times Impervious Governs		

* An additional 0.5-inch of pretreatment for industrial or commercial projects will be needed.
* Per SFWMD, standard water quality volume is 100% for wet detention, 75% for dry detention, and 50% for dry retention
* OFW volume is 150% of the standard SFWMD criteria

Post Development -Stage Storage Calculations Post Basin

Land use Category	Storage Type	Area (ac.)	From Elev.	To Elev.	Cumulative Stage-Storage (ac-ft) 0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00
TOE Detention 1	Vertical	0.104	5.00		0.00	0.00	0.00	0.00	0.00	0.05	0.10	0.16	0.21	0.26	0.31	0.36	0.41	0.47	0.52	0.57	0.62	0.67	0.73	0.78
Slope Detention 1	Linear	0.110	5.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44
TOE Detention 2	Vertical	0.046	2.50		0.00	0.00	0.00	0.00	0.00	0.08	0.10	0.13	0.15	0.17	0.20	0.22	0.24	0.26	0.29	0.31	0.33	0.36	0.38	0.40
Slope Detention 2	Linear	0.120	2.50	4.50	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54	0.60	0.66	0.72	0.78
TOE Detention 3	Vertical	0.140	4.00		0.00	0.00	0.00	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63	0.70	0.77	0.84	0.91	0.98	1.05	1.12
Slope Detention 3	Linear	0.174	4.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.10	0.17	0.26	0.35	0.44	0.52	0.61	0.70	0.78	0.87
TOE Detention 4	Vertical	0.006	5.00		0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Slope Detnetion 4	Linear	0.017	5.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.08
TOE Detention 5	Vertical	0.006	5.00		0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05
Slope Detention 5	Linear	0.095	5.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.05	0.10	0.14	0.19	0.24	0.29	0.33	0.38
TOE Detention 6	Vertical	0.034	1.00		0.00	0.02	0.03	0.05	0.07	0.09	0.10	0.12	0.14	0.15	0.17	0.19	0.20	0.22	0.24	0.26	0.27	0.29	0.31	0.32
Exfiltration Trench	Vertical		0.00		0.06	0.15	0.24	0.32	0.41	0.50	0.59	0.68	0.76	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
WQTV Volume					**0.06**	**0.17**	**0.27**	**0.36**	**0.55**	**0.87**	**1.15**	**1.45**	**1.76**	**2.11**	**2.41**	**2.76**	**3.14**	**3.56**	**3.98**	**4.41**	**4.83**	**5.26**	**5.69**	**6.11**
Impervious Asphalt		2.13	4.40	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.35	1.17	2.23	3.29	4.36	5.42	6.48	7.54	8.61	9.67	10.73
Pervious Pavement		0.51	4.40	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.18	0.31	0.48	0.68	0.92	1.17	1.43	1.68	1.94
Sidewalk		0.70	4.40	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.25	0.43	0.66	0.93	1.26	1.61	1.96	2.31	2.66
Off site Pervious Pavement		0.15	4.40	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.14	0.21	0.29	0.36	0.44	0.51	0.59	0.66	0.74	0.81
Pool		0.09	7.00	7.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.11	0.16	0.20	0.25
Landscape		0.65	4.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.24	0.43	0.67	0.97	1.29	1.61	1.94	2.26	2.58	2.90
Boat Barn		2.41	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	2.41	3.61	4.82	6.02	7.23	8.43	9.64
Boat Barn Storage		0.11	7.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.16	0.22	0.27	0.33
Sub-Total:		7.59		**Totals:**	**0.06**	**0.17**	**0.27**	**0.36**	**0.55**	**0.87**	**1.15**	**1.45**	**1.80**	**2.69**	**4.16**	**6.06**	**9.34**	**12.79**	**16.44**	**20.19**	**23.99**	**27.78**	**31.58**	**35.37**
Building Pads		0.28	*Not included in Stage-storage calculations																					
	Total:	7.86																						

ICPR Volume (DOES NOT INCLUDE EXFIL)

$A_2 = 2((V_2-V_1)/(S_2-S_1)) - A1$

Stage	Volume
0.50	0.00
1.00	0.02
1.50	0.03
2.00	0.04
2.50	0.14
3.00	0.37
3.50	0.56
4.00	0.77
4.50	1.04
5.00	1.84
5.50	3.31
6.00	5.21
6.50	8.49
7.00	11.94
7.50	15.59
8.00	19.34

Set Water Quality Elevation

Total Water Quality Volume Required:	0.90 ac-ft	<---	WQTV 2.5" x Percent Impervious
Retention Volume Required for Net Improvement:	0.00 ac-ft	<---	Net Improvement is provided in exfiltration trench
Retention Volume Stage for Net Improvement:	N/A NAVD		
Detention Water Quality Volume Remaining:	0.90 ac-ft		
Required Water Quality Detention Stage:	3.05 NAVD		
Overflow Weir Elevation:	3.10 NAVD	<---	Proposed Weir Elevation
Water Quality Detention Volume Provided:	0.93 ac-ft		
Total Water Quality Volume Provided:	0.93 ac-ft		

Build Out Bleeder Size Calculations

Project: Atlantic Point
Project #: 21-393
Engineer: MDL
Date: 2/23/2022

Allowed discharge in the first 24-hours is .5-inches of the required detention.

(Discharge Volume) 0.5-inch * 1-ft/12-in * 7.870 (PROJECT AREA - LAKES (AC)) = 0.328 (TREATED VOLUME) ac-ft

(Conversion) 1-day / 86,400-sec. * 43,560-sf / 1-acre * 0.328 (VOLUME (AC-FT)) = 0.165 (DISCHARGE) cfs

Basin Area = 7.870 ac

Lake Area = 0.000 ac

Bleeder Elevation = 0.00 ft

Bleeder Size (dia) = 3.00 in * First iteration use 3-inch diameter bleeder.

Number of bleeders = 1.00 * Enter the number of bleeders.

Water Quality Stage = 3.10 ft * Enter water quality staqe elevation from the stage-storage table spread sheet.

Bleeder Sizing:

Size bleeder to discharge at a rate of 0.5 in/day for the contributing area.

For circular orifice use the following equation.

$$A = \frac{Q}{4.8 * (H)^{.5}}$$

Q = Maximum Flow (cfs)
A = Cross Sectional Area (sq.ft.)
H = Head above bleeder centroid (ft)

Results,
Q = 0.165 cfs
H = 2.975 feet

A = 0.0200 sq.ft.

For diameter of the circular orifice use the following equation.

$$d = \left(\frac{4 * A}{Pi}\right)^{.5}$$

d = diameter (ft)
A = Cross Sectional Area (sq.ft.)

Results,
A = 0.0200 sq.ft.

d = 0.1595 feet

Finally, the diameter in inches

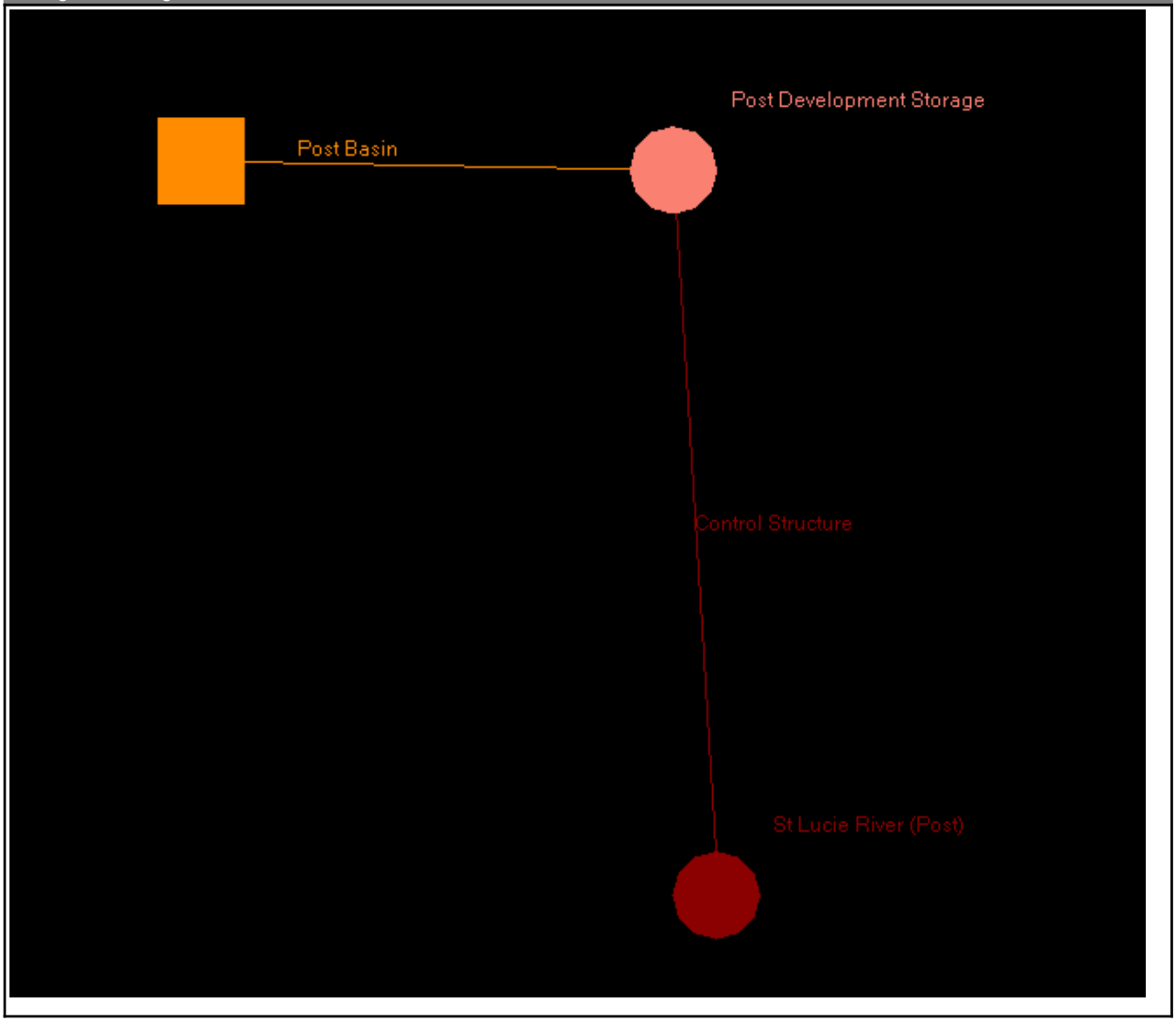
d = 1.91 inches Use minimum sized bleeder

* If diameter is larger than 3-inches than "Bleeder Size" input information needs to be revised until bleeder input size and output diameter equal each other.

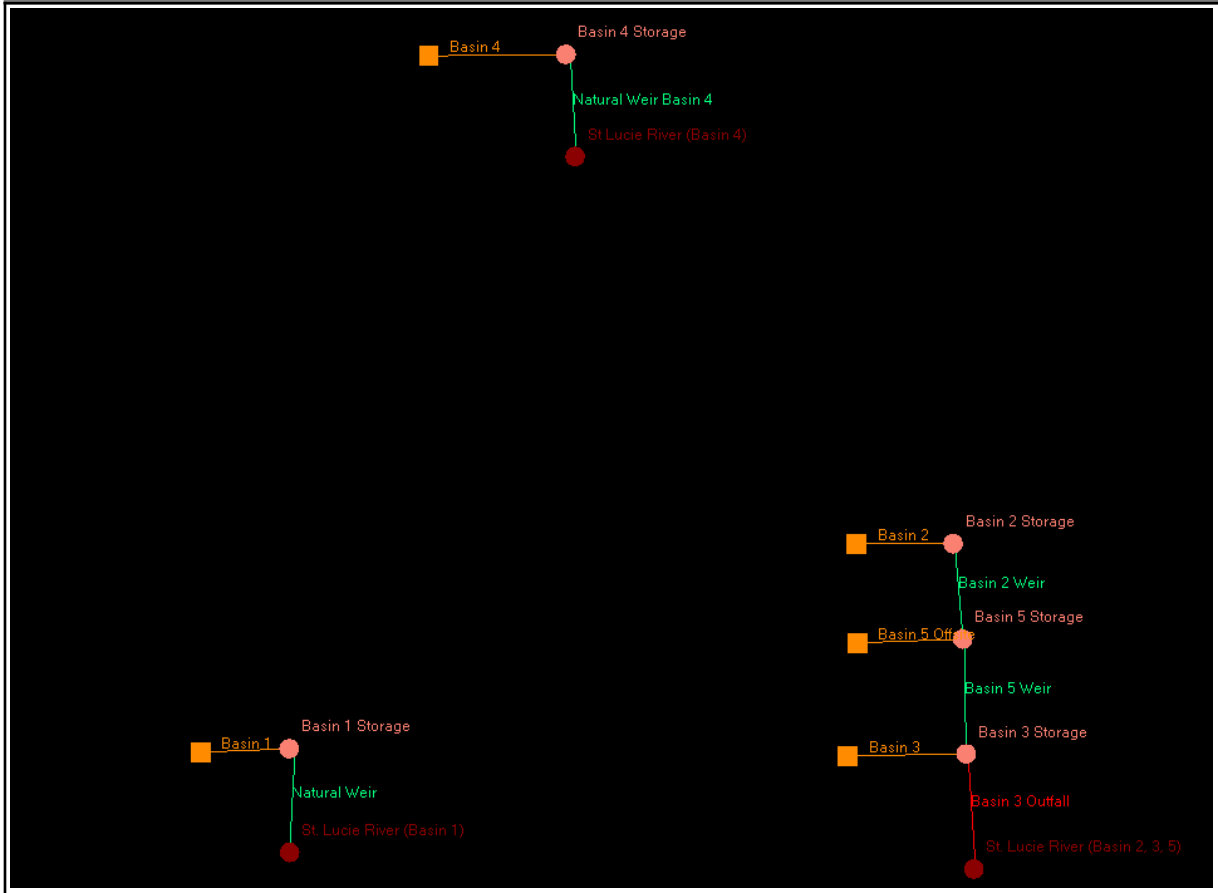
Note: add bleeder diameter to control elevation. Ensure that its less than weir elevation by three inches

Appendix C: ICPR Inputs and Results

Background Image: Post



Background Image: Pre Development



Curve Number: Post Development [Set]

Land Cover Zone	Soil Zone	Curve Number [dec]
Post Development		90.0

Curve Number: Pre-Development [Set]

Land Cover Zone	Soil Zone	Curve Number [dec]
Basin 1		57.0
Basin 2		87.0
Basin 3		82.0
Basin 4		59.0
Basin 5 Offsite		79.0

Simulation: 10 - 1

Scenario: Post Development
Run Date/Time: 3/3/2022 5:59:53 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Post Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Post Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSIII-24
		Rainfall Amount:	6.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 10-3

Scenario: Post Development
Run Date/Time: 3/3/2022 6:04:16 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Post Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

Max dZ: 1.0000 ft

Link Optimizer Tol: 0.0001 ft

Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain Opt: Global

Rainfall Name: ~SFWMD-72

Rainfall Amount: 9.50 in

Storm Duration: 72.0000 hr

Dflt Damping (1D): 0.0050 ft

Min Node Srf Area (1D): 100 ft2

Energy Switch (1D): Energy

Comment:

Simulation: 100 - 3

Scenario: Post Development

Run Date/Time: 3/3/2022 5:55:36 AM

Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Post Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain: Global

		Opt:	
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	13.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 25 - 3

Scenario: Post Development
Run Date/Time: 3/3/2022 6:08:37 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Post Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Post Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	11.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 3-1

Scenario: Post Development
Run Date/Time: 3/3/2022 6:12:59 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Post Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Post Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

Max dZ: 1.0000 ft

Link Optimizer Tol: 0.0001 ft

Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain Opt: Global

Rainfall Name: ~SCSII-24

Rainfall Amount: 5.00 in

Storm Duration: 72.0000 hr

Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment:

Simulation: 5-1

Scenario: Post Development
Run Date/Time: 3/3/2022 6:16:37 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	Post Development
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	Post Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSII-24
		Rainfall Amount:	6.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 10-3

Scenario:	Pre-Development
Run Date/Time:	2/23/2022 9:56:03 AM
Program Version:	ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Pre-Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Pre-Development

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 9.50 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Simulation: 25 - 3

Scenario: Pre-Development
Run Date/Time: 2/23/2022 9:56:39 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Pre-Development
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Pre-Development

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	11.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 3-1

Scenario: Pre-Development
Run Date/Time: 2/23/2022 9:57:21 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Pre-Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Pre-Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

Max dZ: 1.0000 ft

Link Optimizer Tol: 0.0001 ft

Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain Opt: Global

Rainfall Name: ~SCSII-24

Rainfall Amount: 5.00 in

Storm Duration: 72.0000 hr

Dflt Damping (1D): 0.0050 ft

Min Node Srf Area (1D): 100 ft2

Energy Switch (1D): Energy

Comment:

Simulation: 5-1

Scenario: Pre-Development

Run Date/Time: 2/23/2022 9:58:08 AM

Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	360.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000
0	0	0	55.0000	60.0000
0	0	0	70.0000	60.0000
0	0	0	360.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:

Extern Hydrograph Set:

Curve Number Set: Pre-Development

Green-Ampt Set:

Vertical Layers Set:

Impervious Set: Pre-Development

Tolerances & Options

Time Marching: SAOR

Max Iterations: 6

Over-Relax Weight Fact: 0.5 dec

dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain: Global

		Opt:	
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSII-24
		Rainfall Amount:	6.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Manual Basin: Post Basin

Scenario:	Post Development
Node:	Post Development Storage
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	22.0000 min
Max Allowable Q:	99999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	7.9600 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
7.9600	Post Development		

Comment:

Manual Basin: Basin 1

Scenario:	Pre-Development
Node:	Basin 1 Storage
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	99999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	3.0300 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
3.0300	Basin 1		

Comment:

Manual Basin: Basin 2

Scenario: Pre-Development
Node: Basin 2 Storage
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 99999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 1.3100 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
1.3100	Basin 2		

Comment:

Manual Basin: Basin 3

Scenario: Pre-Development
Node: Basin 3 Storage
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 11.0000 min
Max Allowable Q: 99999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 2.6500 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
2.6500	Basin 3		

Comment:

Manual Basin: Basin 4

Scenario: Pre-Development
Node: Basin 4 Storage
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 0.4100 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
0.4100	Basin 4		

Comment:

Manual Basin: Basin 5 Offsite

Scenario: Pre-Development
Node: Basin 5 Storage
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 999999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 0.4600 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
0.4600	Basin 5 Offsite		

Comment:

Node: Post Development Storage

Scenario: Post Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 0.50 ft
Warning Stage: 7.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
0.50	0.00	0
1.00	0.02	871
1.50	0.03	1307
2.00	0.04	1742
2.50	0.14	6098
3.00	0.37	16117
3.50	0.56	24394
4.00	0.77	33541
4.50	1.04	45302
5.00	1.84	80150
5.50	3.31	144184
6.00	5.21	226948
6.50	8.49	369824
7.00	11.94	520106
7.50	15.59	679100
8.00	19.34	842450

Comment:

Node Max Conditions w/ Times [Post Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Post Development Storage	10 - 1	7.00	4.79	-0.0010	24.04	8.51	76729	13.0640	34.7176	12.3498	13.0640
Post Development Storage	10-3	7.00	4.89	0.0010	27.41	11.48	87541	60.7218	58.4308	60.1002	60.7284
Post Development Storage	100 - 3	7.00	6.39	0.0010	37.94	0.14	278395	73.9574	6.4971	60.0994	0.0000
Post Development Storage	25 - 3	7.00	4.98	0.0010	31.93	14.37	96822	60.6758	59.6308	60.0998	60.6818
Post Development Storage	3-1	7.00	4.34	-0.0010	12.19	3.11	38146	36.9713	72.6868	36.0667	36.9791
Post Development Storage	5-1	7.00	4.59	0.0010	15.02	4.24	55963	36.9047	34.7791	36.0666	36.9047

Node: St Lucie River (Post)

Scenario: Post Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: -0.81 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	-0.81
0	0	0	55.0000	-0.39
0	0	0	70.0000	-0.28
0	0	0	360.0000	-0.81

Comment:

Node Max Conditions w/ Times [Post Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
St Lucie River (Post)	10 - 1	0.00	-0.28	0.0001	8.50	0.00	0	69.9992	0.7908	13.0774	0.0000
St Lucie River (Post)	10-3	0.00	-0.28	0.0001	11.48	0.00	0	70.0025	0.7908	60.7284	0.0000
St Lucie River (Post)	100 - 3	0.00	-0.28	0.0001	0.00	0.00	0	69.9991	0.7316	0.0000	0.0000
St Lucie River (Post)	25 - 3	0.00	-0.28	0.0001	14.37	0.00	0	70.0047	32.0046	60.6818	0.0000
St Lucie River (Post)	3-1	0.00	-0.28	0.0001	3.11	0.00	0	70.0054	0.7908	36.9791	0.0000
St Lucie River (Post)	5-1	0.00	-0.28	0.0001	4.24	0.00	0	69.9996	0.7908	36.9209	0.0000

Node: Basin 1 Storage

Scenario: Pre-Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 2.50 ft
Warning Stage: 7.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
2.00	0.00	0
2.50	0.00	0
3.00	0.12	5227
3.50	0.41	17860
4.00	0.87	37897
4.50	1.50	65340
5.00	2.31	100624
5.50	3.32	144619
6.00	4.53	197327
6.50	5.86	255262
7.00	7.20	313632
7.50	8.53	371567

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Basin 1 Storage	10-3	7.00	2.89	-0.0010	7.84	6.83	15090	60.1090	60.5798	60.0333	60.1090
Basin 1 Storage	25 - 3	7.00	2.96	-0.0010	9.87	8.60	16729	60.1080	60.5696	60.0334	60.1094
Basin 1 Storage	3-1	7.00	2.63	-0.0007	1.59	1.38	8620	36.1082	36.4401	36.0325	36.1082
Basin 1 Storage	5-1	7.00	2.68	-0.0009	2.47	2.21	9870	36.0960	36.4347	36.0321	36.0979

Node: Basin 2 Storage

Scenario: Pre-Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 2.50 ft
Warning Stage: 7.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
2.50	0.00	0
3.00	0.05	2178
3.50	0.18	7841
4.00	0.38	16553
4.50	0.67	29185
5.00	1.09	47480
5.50	1.64	71438
6.00	2.22	96703
6.50	2.80	121968
7.00	3.37	146797
7.50	3.95	172062
8.00	4.53	197327

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Basin 2	10-3	7.00	2.58	-0.0052	5.27	5.19	1975	60.3050	0.0001	60.0166	0.0000

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Storage											
Basin 2 Storage	25 - 3	7.00	2.67	-0.0052	6.16	5.83	3293	60.3494	0.0001	60.0168	60.0079
Basin 2 Storage	3-1	7.00	2.50	-0.0052	2.12	5.19	100	0.0000	0.0001	36.0005	0.0000
Basin 2 Storage	5-1	7.00	2.50	-0.0052	2.64	5.19	100	0.0000	0.0001	36.0008	0.0000

Node: Basin 3 Storage

Scenario: Pre-Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 1.00 ft
Warning Stage: 7.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.00	0.00	0
1.50	0.03	1307
2.00	0.20	8712
2.50	0.53	23087
3.00	1.03	44867
3.50	1.67	72745
4.00	2.48	108029
4.50	3.40	148104
5.00	4.32	188179
5.50	5.25	228690
6.00	6.18	269201
6.50	7.11	309712

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Basin 3 Storage	10-3	7.00	2.54	0.0010	16.30	8.05	37336	60.3761	11.6941	59.9923	60.3810
Basin 3	25 - 3	7.00	2.64	0.0010	18.08	9.09	39969	60.3981	10.3029	59.9315	60.4051

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Storage											
Basin 3 Storage	3-1	7.00	2.18	0.0010	6.43	3.31	26879	36.3145	34.7361	36.0248	36.3190
Basin 3 Storage	5-1	7.00	2.30	0.0010	8.16	4.56	30319	36.2650	35.3081	36.0181	36.2754

Node: Basin 4 Storage

Scenario: Pre-Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 1.00 ft
Warning Stage: 7.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.00	0.00	0
1.50	0.01	436
2.00	0.06	2614
2.50	0.13	5663
3.00	0.23	10019
3.50	0.36	15682
4.00	0.52	22651
4.50	0.71	30928
5.00	0.92	40075
5.50	1.16	50530
6.00	1.39	60548
6.50	1.62	70567

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Basin 4 Storage	10-3	7.00	2.51	0.0010	1.11	0.04	7472	68.0112	60.1443	60.0333	68.0196
Basin 4 Storage	25 - 3	7.00	2.53	0.0010	1.39	0.16	7571	61.3890	60.1566	60.0324	61.3890
Basin 4	3-1	7.00	1.87	0.0010	0.24	0.00	4556	72.9857	34.8344	36.0325	0.0000

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Storage											
Basin 4 Storage	5-1	7.00	2.05	0.0010	0.37	0.00	5448	72.9840	34.1269	36.0321	0.0000

Node: Basin 5 Storage

Scenario: Pre-Development
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 1.50 ft
Warning Stage: 7.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.50	0.00	0
2.00	0.01	436
2.50	0.07	3049
3.00	0.22	9583
3.50	0.44	19166
4.00	0.69	30056
4.50	0.94	40946
5.00	1.19	51836
5.50	1.44	62726
6.00	1.69	73616
6.50	1.94	84506
7.00	2.19	95396

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Basin 5 Storage	10-3	7.00	2.56	0.0052	6.92	6.47	9920	60.3663	0.0001	60.0166	59.9862
Basin 5 Storage	25 - 3	7.00	2.65	0.0052	7.88	7.06	11274	60.3913	0.0001	60.0159	59.9240
Basin 5 Storage	3-1	7.00	2.33	0.0052	5.19	2.69	7099	36.0445	0.0001	0.0000	36.0462
Basin 5	5-1	7.00	2.35	0.0052	5.19	3.38	7366	36.0413	0.0001	0.0000	36.0429

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
Storage											

Node: St Lucie River (Basin 4)

Scenario: Pre-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: -0.81 ft
Warning Stage: 7.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	-0.81
0	0	0	55.0000	-0.39
0	0	0	70.0000	-0.28
0	0	0	360.0000	-0.81

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
St Lucie River (Basin 4)	10-3	7.00	-0.28	0.0001	0.04	0.00	0	70.0029	40.6004	68.0196	0.0000
St Lucie River (Basin 4)	25 - 3	7.00	-0.28	0.0001	0.16	0.00	0	70.0009	40.6008	61.3890	0.0000
St Lucie River (Basin 4)	3-1	7.00	-0.28	0.0001	0.00	0.00	0	70.0024	0.7214	0.0000	0.0000
St Lucie River (Basin 4)	5-1	7.00	-0.28	0.0001	0.00	0.00	0	70.0007	0.7214	0.0000	0.0000

Node: St. Lucie River (Basin 1)

Scenario: Pre-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: -0.81 ft
Warning Stage: 7.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	-0.81
0	0	0	55.0000	-0.39
0	0	0	70.0000	-0.28
0	0	0	360.0000	-0.81

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
St. Lucie River (Basin 1)	10-3	7.00	-0.28	0.0001	6.83	0.00	0	70.0029	40.6004	60.1090	0.0000
St. Lucie River (Basin 1)	25 - 3	7.00	-0.28	0.0001	8.60	0.00	0	70.0009	40.6008	60.1094	0.0000
St. Lucie River (Basin 1)	3-1	7.00	-0.28	0.0001	1.38	0.00	0	70.0024	0.7214	36.1082	0.0000
St. Lucie River (Basin 1)	5-1	7.00	-0.28	0.0001	2.21	0.00	0	70.0007	0.7214	36.0979	0.0000

Node: St. Lucie River (Basin 2, 3, 5)

Scenario: Pre-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: -0.81 ft
Warning Stage: 0.00 ft

Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	-0.81
0	0	0	55.0000	-0.39
0	0	0	70.0000	-0.28
0	0	0	360.0000	-0.81

Comment:

Node Max Conditions w/ Times [Pre-Development]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
St. Lucie River (Basin 2, 3, 5)	10-3	0.00	-0.28	0.0001	8.05	0.00	0	70.0029	40.6004	60.3810	0.0000
St. Lucie River (Basin 2, 3, 5)	25 - 3	0.00	-0.28	0.0001	9.09	0.00	0	70.0009	40.6008	60.4051	0.0000
St. Lucie River (Basin 2, 3, 5)	3-1	0.00	-0.28	0.0001	3.31	0.00	0	70.0024	0.7214	36.3190	0.0000
St. Lucie River (Basin 2, 3, 5)	5-1	0.00	-0.28	0.0001	4.56	0.00	0	70.0007	0.7214	36.2754	0.0000

Weir Link: Basin 2 Weir

Scenario:	Pre-Development
From Node:	Basin 2 Storage
To Node:	Basin 5 Storage
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	2.24 ft
Control Elevation:	2.24 ft
Max Depth:	4.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	

Max Width:	3.00 ft		
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: Basin 5 Weir

Scenario:	Pre-Development	Bottom Clip	
From Node:	Basin 5 Storage	Default:	0.00 ft
To Node:	Basin 3 Storage	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	2.20 ft	Discharge Coefficients	
Control Elevation:	2.20 ft	Weir Default:	2.800
Max Depth:	1.00 ft	Weir Table:	
Max Width:	20.00 ft	Orifice Default:	0.600
Fillet:	0.00 ft	Orifice Table:	

Comment:

Weir Link: Natural Weir

Scenario:	Pre-Development	Bottom Clip	
From Node:	Basin 1 Storage	Default:	0.00 ft
To Node:	St. Lucie River (Basin 1)	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	2.50 ft	Discharge Coefficients	
Control Elevation:	2.50 ft	Weir Default:	2.800
Max Depth:	1.00 ft	Weir Table:	
Max Width:	10.00 ft	Orifice Default:	0.600
Fillet:	0.00 ft	Orifice Table:	

Comment:

Weir Link: Natural Weir Basin 4

Scenario:	Pre-Development	Bottom Clip	
From Node:	Basin 4 Storage	Default:	0.00 ft
To Node:	St Lucie River (Basin 4)	Op Table:	
Link Count:	1	Ref Node:	

Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Rectangular
Invert:	2.50 ft
Control Elevation:	2.50 ft
Max Depth:	1.00 ft
Max Width:	10.00 ft
Fillet:	0.00 ft

Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients	
Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Drop Structure Link: Control Structure	
Scenario:	Post Development
From Node:	Post Development Storage
To Node:	St Lucie River (Post)
Link Count:	1
Flow Direction:	Both
Solution:	Combine
Increments:	0
Pipe Count:	1
Damping:	0.0000 ft
Length:	30.00 ft
FHWA Code:	0
Entr Loss Coef:	0.00
Exit Loss Coef:	0.00
Bend Loss Coef:	0.00
Bend Location:	0.00 dec
Energy Switch:	Energy

Upstream Pipe	
Invert:	0.00 ft
Manning's N:	0.0110
Geometry: Circular	
Max Depth:	1.50 ft
Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000
Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Downstream Pipe	
Invert:	0.00 ft
Manning's N:	0.0110
Geometry: Circular	
Max Depth:	1.50 ft
Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000
Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Pipe Comment:

Weir Component	
Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Circular
Invert:	0.00 ft
Control Elevation:	0.00 ft
Max Depth:	0.25 ft

Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients	
Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment: bleeder

Weir Component			
Weir:	2	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Horizontal	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	3.10 ft	Op Table:	
Control Elevation:	3.10 ft	Ref Node:	
Max Depth:	0.25 ft	Discharge Coefficients	
Max Width:	2.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: weir

Weir Component			
Weir:	3	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Horizontal	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	4.50 ft	Op Table:	
Control Elevation:	4.50 ft	Ref Node:	
Max Depth:	3.00 ft	Discharge Coefficients	
Max Width:	2.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Rim

Drop Structure Comment:

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	0.0000	0.50	0.00
Post Development	25 - 3	Post Development Storage	1.0075	0.03	0.00
Post Development	25 - 3	Post Development Storage	2.0075	0.01	0.00
Post Development	25 - 3	Post Development Storage	3.0075	0.01	0.00
Post Development	25 - 3	Post Development Storage	4.0075	0.00	0.00
Post Development	25 - 3	Post Development Storage	5.0045	0.03	0.00
Post Development	25 - 3	Post Development Storage	6.0019	0.16	0.00
Post Development	25 - 3	Post Development Storage	7.0019	0.25	0.01
Post Development	25 - 3	Post Development Storage	8.0019	0.30	0.01
Post Development	25 - 3	Post Development Storage	9.0019	0.39	0.02
Post Development	25 - 3	Post Development Storage	10.0019	0.49	0.03
Post Development	25 - 3	Post Development Storage	11.0019	0.52	0.04
Post Development	25 - 3	Post Development Storage	12.0019	0.55	0.05
Post Development	25 - 3	Post Development Storage	13.0019	0.61	0.06
Post Development	25 - 3	Post Development Storage	14.0019	0.67	0.08
Post Development	25 - 3	Post Development Storage	15.0019	0.74	0.09
Post Development	25 - 3	Post Development Storage	16.0019	0.82	0.10
Post Development	25 - 3	Post Development Storage	17.0019	0.90	0.12
Post Development	25 - 3	Post Development Storage	18.0019	0.99	0.14
Post Development	25 - 3	Post Development Storage	19.0019	1.08	0.15
Post Development	25 - 3	Post Development Storage	20.0019	1.17	0.17
Post Development	25 - 3	Post Development Storage	21.0019	1.25	0.19
Post Development	25 - 3	Post Development Storage	22.0019	1.33	0.21
Post Development	25 - 3	Post Development Storage	23.0019	1.41	0.23
Post Development	25 - 3	Post Development Storage	24.0019	1.49	0.25
Post Development	25 - 3	Post Development Storage	25.0015	1.69	0.27
Post Development	25 - 3	Post Development Storage	26.0073	1.84	0.30
Post Development	25 - 3	Post Development Storage	27.0046	1.96	0.32
Post Development	25 - 3	Post Development Storage	28.0046	2.05	0.35

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	29.0046	2.13	0.38
Post Development	25 - 3	Post Development Storage	30.0046	2.19	0.40
Post Development	25 - 3	Post Development Storage	31.0046	2.24	0.43
Post Development	25 - 3	Post Development Storage	32.0046	2.29	0.46
Post Development	25 - 3	Post Development Storage	33.0046	2.34	0.48
Post Development	25 - 3	Post Development Storage	34.0046	2.38	0.51
Post Development	25 - 3	Post Development Storage	35.0046	2.42	0.54
Post Development	25 - 3	Post Development Storage	36.0046	2.46	0.57
Post Development	25 - 3	Post Development Storage	37.0046	2.50	0.60
Post Development	25 - 3	Post Development Storage	38.0046	2.54	0.63
Post Development	25 - 3	Post Development Storage	39.0046	2.57	0.66
Post Development	25 - 3	Post Development Storage	40.0046	2.61	0.68
Post Development	25 - 3	Post Development Storage	41.0046	2.65	0.71
Post Development	25 - 3	Post Development Storage	42.0046	2.68	0.74
Post Development	25 - 3	Post Development Storage	43.0046	2.71	0.77
Post Development	25 - 3	Post Development Storage	44.0046	2.75	0.80
Post Development	25 - 3	Post Development Storage	45.0046	2.78	0.84
Post Development	25 - 3	Post Development Storage	46.0046	2.82	0.87
Post Development	25 - 3	Post Development Storage	47.0046	2.85	0.90
Post Development	25 - 3	Post Development Storage	48.0046	2.88	0.93
Post Development	25 - 3	Post Development Storage	49.0046	2.92	0.96
Post Development	25 - 3	Post Development Storage	50.0046	2.96	0.99
Post Development	25 - 3	Post Development Storage	51.0046	3.02	1.02
Post Development	25 - 3	Post Development Storage	52.0046	3.09	1.06
Post Development	25 - 3	Post Development Storage	53.0046	3.17	1.10
Post Development	25 - 3	Post Development Storage	54.0046	3.23	1.17
Post Development	25 - 3	Post Development Storage	55.0046	3.27	1.27
Post Development	25 - 3	Post Development Storage	56.0046	3.32	1.39
Post Development	25 - 3	Post Development Storage	57.0046	3.39	1.52

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	58.0065	3.50	1.67
Post Development	25 - 3	Post Development Storage	59.0005	3.69	1.84
Post Development	25 - 3	Post Development Storage	60.0001	4.59	2.06
Post Development	25 - 3	Post Development Storage	61.0014	4.95	3.07
Post Development	25 - 3	Post Development Storage	62.0007	4.74	3.91
Post Development	25 - 3	Post Development Storage	63.0023	4.58	4.35
Post Development	25 - 3	Post Development Storage	64.0012	4.47	4.64
Post Development	25 - 3	Post Development Storage	65.0043	4.32	4.91
Post Development	25 - 3	Post Development Storage	66.0012	4.12	5.15
Post Development	25 - 3	Post Development Storage	67.0021	3.87	5.37
Post Development	25 - 3	Post Development Storage	68.0017	3.65	5.57
Post Development	25 - 3	Post Development Storage	69.0021	3.43	5.73
Post Development	25 - 3	Post Development Storage	70.0047	3.27	5.86
Post Development	25 - 3	Post Development Storage	71.0031	3.21	5.95
Post Development	25 - 3	Post Development Storage	72.0031	3.19	6.02
Post Development	25 - 3	Post Development Storage	73.0031	3.13	6.08
Post Development	25 - 3	Post Development Storage	74.0031	3.05	6.11
Post Development	25 - 3	Post Development Storage	75.0031	2.98	6.14
Post Development	25 - 3	Post Development Storage	76.0031	2.90	6.18
Post Development	25 - 3	Post Development Storage	77.0031	2.82	6.21
Post Development	25 - 3	Post Development Storage	78.0031	2.74	6.24
Post Development	25 - 3	Post Development Storage	79.0031	2.66	6.27
Post Development	25 - 3	Post Development Storage	80.0031	2.57	6.30
Post Development	25 - 3	Post Development Storage	81.0031	2.49	6.33
Post Development	25 - 3	Post Development Storage	82.0031	2.39	6.35
Post Development	25 - 3	Post Development Storage	83.0031	2.29	6.38
Post Development	25 - 3	Post Development Storage	84.0016	2.16	6.41
Post Development	25 - 3	Post Development Storage	85.0027	1.97	6.44
Post Development	25 - 3	Post Development Storage	86.0012	1.65	6.46

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	87.0017	0.93	6.48
Post Development	25 - 3	Post Development Storage	88.0033	0.58	6.49
Post Development	25 - 3	Post Development Storage	89.0057	0.04	6.50
Post Development	25 - 3	Post Development Storage	90.0014	0.01	6.50
Post Development	25 - 3	Post Development Storage	91.0014	0.01	6.50
Post Development	25 - 3	Post Development Storage	92.0014	0.01	6.50
Post Development	25 - 3	Post Development Storage	93.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	94.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	95.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	96.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	97.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	98.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	99.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	100.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	101.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	102.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	103.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	104.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	105.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	106.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	107.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	108.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	109.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	110.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	111.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	112.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	113.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	114.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	115.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	116.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	117.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	118.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	119.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	120.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	121.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	122.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	123.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	124.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	125.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	126.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	127.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	128.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	129.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	130.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	131.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	132.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	133.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	134.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	135.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	136.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	137.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	138.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	139.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	140.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	141.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	142.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	143.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	144.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	145.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	146.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	147.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	148.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	149.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	150.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	151.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	152.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	153.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	154.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	155.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	156.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	157.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	158.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	159.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	160.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	161.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	162.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	163.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	164.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	165.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	166.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	167.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	168.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	169.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	170.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	171.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	172.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	173.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	174.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	175.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	176.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	177.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	178.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	179.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	180.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	181.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	182.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	183.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	184.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	185.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	186.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	187.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	188.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	189.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	190.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	191.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	192.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	193.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	194.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	195.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	196.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	197.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	198.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	199.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	200.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	201.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	202.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	203.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	204.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	205.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	206.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	207.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	208.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	209.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	210.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	211.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	212.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	213.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	214.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	215.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	216.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	217.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	218.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	219.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	220.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	221.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	222.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	223.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	224.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	225.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	226.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	227.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	228.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	229.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	230.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	231.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	232.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	233.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	234.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	235.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	236.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	237.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	238.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	239.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	240.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	241.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	242.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	243.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	244.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	245.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	246.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	247.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	248.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	249.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	250.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	251.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	252.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	253.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	254.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	255.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	256.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	257.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	258.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	259.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	260.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	261.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	262.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	263.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	264.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	265.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	266.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	267.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	268.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	269.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	270.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	271.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	272.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	273.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	274.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	275.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	276.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	277.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	278.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	279.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	280.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	281.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	282.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	283.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	284.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	285.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	286.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	287.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	288.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	289.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	290.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	291.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	292.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	293.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	294.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	295.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	296.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	297.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	298.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	299.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	300.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	301.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	302.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	303.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	304.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	305.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	306.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	307.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	308.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	309.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	310.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	311.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	312.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	313.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	314.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	315.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	316.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	317.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	318.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	319.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	320.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	321.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	322.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	323.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	324.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	325.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	326.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	327.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	328.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	329.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	330.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	331.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	332.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	333.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	334.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	335.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	336.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	337.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	338.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	339.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	340.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	341.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	342.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	343.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	344.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	345.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	346.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	347.0014	0.00	6.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Volume [ac_ft]
Post Development	25 - 3	Post Development Storage	348.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	349.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	350.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	351.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	352.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	353.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	354.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	355.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	356.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	357.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	358.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	359.0014	0.00	6.50
Post Development	25 - 3	Post Development Storage	360.0014	0.00	6.50

Appendix D: Geotechnical Report

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GEOTECHNICAL EXPLORATION

ATLANTIC POINT YACHT CLUB & MARINA
REDEVELOPMENT PROJECT
75 NW FLAGLER AVENUE
STUART, FLORIDA

UES PROJECT NO. 3330.2100078.0000

PREPARED FOR:

Straticon Construction Services
451 SW Federal Highway
Stuart, Florida 34994

Attn: Mr. Dan Moore

PREPARED BY:

Universal Engineering Sciences
607 NW Commodity Cove
Port St. Lucie, Florida 34986
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October 20, 2021

Consultants in: Geotechnical Engineering • Environmental Sciences
• Construction Materials Testing • Threshold Inspection

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Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

October 20, 2021

Mr. Dan Moore
Straticon Construction Services
451 SW Federal Highway
Stuart, Florida 34994

Subject: Report of Geotechnical Exploration
Atlantic Point Yacht Club & Marina Redevelopment Project
75 NW Flagler Avenue, Stuart, Florida
UES Project No. 3330.2100209.0000

Dear Mr. Moore:

Universal Engineering Sciences (UES) has completed the subsurface exploration and geotechnical engineering evaluation for the above referenced project in accordance with the geotechnical and engineering service agreement for this project. The scope of services was completed in general accordance with our Geotechnical Engineering Proposal No. 21-1508.00 dated July 26, 2020, planned in conjunction with and authorized by you.

EXECUTIVE SUMMARY

The purpose of our geotechnical exploration was to determine the nature of the subsurface soils and general geomorphic conditions at the site and evaluate their impact upon the proposed construction. This report contains the results of our subsurface exploration and our engineering interpretations of these with respect to the project characteristics described to us, including providing recommendations for foundation design, pavement design, and site preparation.

Per our recent telephone discussions and email correspondence with you we understand that you are looking to redevelop the Atlantic Point Marina. At this time, UES has been provided with a site plan of the proposed new site, along with renderings of the planned project. The plans for construction include a multi-story warehouse to include retail outlets, three smaller commercial buildings, new pavement roadways and parking, new piers and bulkhead.

Structural plans are unavailable at this time. However, we have been provided a Site Plan dated July 12, 2021 which provided the basis for our scope of services. It is our understanding that the new water structures will require floating docks, dredging and piles however pile design will be determined at a later date. For the foundation recommendations presented in this report, we assumed a maximum wall loading of 4 kips per linear foot and a maximum column load of 50 kips for the smaller commercial buildings, while assuming a maximum wall loading of 20 kips and maximum column load of 150 for the three-story shopping structure. Additionally, we have assumed that the three-story building will utilize tilt panel construction.

The recommendations provided herein are based upon the above considerations. If the stated conditions are incorrect or if the project description is revised, please inform UES so that we may review our recommendations with respect to any modifications.

The waterside borings included seven (7) standard penetration test (SPT) borings (50-1 through 50-3 and 12-1 through 12-4), advanced to approximate depths of 12 to 50 feet below the existing mudline. These borings were performed at the proposed floating docks and dredging locations. Note that the mudline was generally encountered at approximate depths of 4 to 10 feet below the water level.

The landside borings included seventeen (17) standard penetration test (SPT) borings (5-1, 40-1 through 40-12, 50-4), advanced to approximate depths of 6 to 50 feet below the existing ground surface. These borings were completed within the proposed roadway, bulkhead and buildings. One (1) auger boring with hand cone penetrometer (HCP) testing (AB-5-2), advanced to depths of approximately 5 feet below the existing ground surface, were completed for within the proposed parking lot. Finally, three (3) hand auger borings with HCP testing advanced to depths of approximately 6 feet below existing grade with accompanying exfiltration tests (EX-1 through EX-3) were performed within the proposed parking areas for buried stormwater systems. The boring depths were established based upon our knowledge of vicinity soils and confined to the zone of soil likely to be influenced by the planned construction. The locations of the borings are illustrated on the Test Location Plan in Appendix B.

The subsurface soil conditions encountered in the waterside borings generally consisted of very loose to dense fine sand (SP), shelly sand (SP), fine sand with silt (SP-SM), and silty fine sand (SM) to the termination depths.

The subsurface soil conditions encountered in the landside borings generally consisted of very loose to medium dense fine sand (SP), shelly sand (SP), fine sand with silt (SP-SM), silty fine sand (SM), fine sand with clay and firm lean clay (CL) to the termination depths. Layers of organic soils or “muck,” with varying amounts of organic contents (OL, SM-OL, ML-OL, SC-OL, SC-OL, SP-SM-OL and PT) were also encountered in borings 40-1, 40-2, 40-4, 40-6, 40-7, 40-8, 50-4, and EX-1 which are in locations that impact every building on the site. The organic soil layers were present at varying depths from 2.5 to 28.5 feet of the soil profile.

The results of the borings were considered to develop design and installation criteria for driven steel pipe piles, sheet piles and augered cast-in-place (ACIP) piles to support the proposed new construction. In addition, pavement design criteria were developed for the project.

We appreciate the opportunity to be of service during this phase of the project and look forward to a continued association. Please do not hesitate to contact us if you have any questions or comments, or if we may further assist you as your plans proceed.

Respectfully Submitted,
Universal Engineering Sciences
Florida Registry No. 4930



Digitally signed by
Allan Abubakar
Date: 2021.10.20
11:29:47 -04'00'

This item has been digitally signed and sealed by Allan G. Abubakar, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Allan G. Abubakar, P.E.
Senior Project Engineer
Florida Registration No. 69952

Erik Soderstrom, E.I.
Geotechnical Department Manager

Distribution: Mr. Dan Moore – Straticon Construction Services 1 pdf

Appendix A - Vicinity Map
Appendix B - Boring and Test Pit Location Plans
Appendix C - Notes Related to Borings
Appendix D – Land Boring Logs
Appendix E – Water Boring Logs
Appendix F - Hydraulic Conductivity Results
Appendix G - Discussion of Soil Groups

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1.0 INTRODUCTION

1.1 Scope of Services

The objective of our geotechnical services was to collect subsurface data for the subject project, summarize the test results, and discuss any apparent site conditions that may have geotechnical significance for the proposed construction. The following scope of services is provided within this report:

1. Prepare boring logs depicting the subsurface soil conditions encountered during our field exploration.

2. Review the soil samples obtained during our field exploration for classification and additional testing if necessary.

3. Evaluate the existing soil conditions found during our exploration with respect to foundation support for the proposed construction.

4. Provide design and installation recommendations for driven steel pipe piles, sheet piles and augered cast-in-place (ACIP) piles.

5. Provide recommendations for the design and construction of new pavement sections.

6. Provide recommendations for site preparation and earthwork construction.

1.2 Project Description

Per our recent telephone discussions and email correspondence with you we understand that you are looking to redevelop the Atlantic Point Marina. At this time, UES has been provided with a site plan of the proposed new site, along with renderings of the planned project. The plans for construction include a multi-story warehouse to include retail outlets, three smaller commercial buildings, new pavement roadways and parking, new piers and bulkhead.

Structural plans are unavailable at this time. However, we have been provided a Site Plan dated July 12, 2021 which provided the basis for our scope of services. It is our understanding that the new water structures will require floating docks, dredging and piles however pile design will be determined at a later date. For the foundation recommendations presented in this report, we assumed a maximum wall loading of 4 kips per linear foot and a maximum column load of 50 kips for the smaller commercial buildings, while assuming a maximum wall loading of 20 kips and maximum column load of 150 for the three-story shopping structure. Additionally, we have assumed that the three-story building will utilize tilt panel construction.

The recommendations provided herein are based upon the above considerations. If the stated conditions are incorrect or if the project description is revised, please inform UES so that we may review our recommendations with respect to any modifications.

2.0 OBSERVATIONS

2.1 Site Description

As illustrated on the Site Vicinity Map in Appendix A, the site is at 75 NW Flagler Avenue in Stuart, Florida. At the time of our field exploration, the site was developed with a marina and associated infrastructure.

2.2 Field Exploration

The waterside borings included seven (7) standard penetration test (SPT) borings (50-1 through 50-3 and 12-1 through 12-4), advanced to approximate depths of 12 to 50 feet below the existing mudline. These borings were performed at the proposed floating docks and dredging locations. Note that the mudline was generally encountered at approximate depths of 4 to 10 feet below the water level.

The landside borings included seventeen (17) standard penetration test (SPT) borings (5-1, 40-1 through 40-12, 50-4), advanced to approximate depths of 6 to 50 feet below the existing ground surface. These borings were completed within the proposed roadway, bulkhead and buildings. One (1) auger boring with hand cone penetrometer (HCP) testing (AB-5-2), advanced to depths of approximately depths of 5 feet below the existing ground surface, were completed for within the proposed parking lot. Finally, three (3) hand auger borings with HCP testing advanced to depths of approximately 6 feet below existing grade with accompanying exfiltration tests (EX-1 through EX-3) were performed within the proposed parking areas for buried stormwater systems. The boring depths were established based upon our knowledge of vicinity soils and confined to the zone of soil likely to be influenced by the planned construction. The locations of the borings are illustrated on the Test Location Plan in Appendix B.

The Standard Penetration Tests (SPT) were performed in general accordance with ASTM D 1586, “Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils.” The SPT test procedure consists of driving a 1.4-inch I.D. split-barrel sampler into the soil profile using a 140-pound hammer falling 30 inches. The number of blows per foot, for the second and third 6-inch increment, is referred to as the N-value. The N-value has been empirically correlated with various soil properties and provides an indication of soil strength.

The auger borings were performed in general accordance with ASTM D 1452, “Standard Practice for Soil Exploration and Sampling by Auger Borings.” Hand Cone Penetrometer (HCP) tests were conducted at approximate one-foot depth intervals in the auger borings. The HCP test, in conjunction with information about the soil type, is empirically correlated to the relative density of subsurface soils.

Site specific survey staking of the borings and exfiltration test was not performed for our field exploration. The boring and exfiltration test locations were approximated using the provided Master Site Plan, GPS coordinates, and by estimating distances and relationships to existing site features.

2.3 Laboratory Testing

Soil samples recovered from our field exploration were returned to our laboratory where they were visually classified by a geotechnical engineer in general accordance with the Unified Soil Classification System (ASTM D 2488). Representative soil samples were then selected from the retained soils and tested in our laboratory for sample specific classification in general accordance with the guidelines of ASTM D 2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System). Selected samples were tested for moisture content (ASTM D 2216), organic content (ASTM D2974), and fines content (ASTM D 1140). The laboratory test results are summarized in Table2.3.1 below and are also contained on the boring logs.

Table 2.3.1 - Laboratory Test Results

Boring No.	Strata Depth (feet)	Sample Description	Moisture Content (%)	Fines Content (%)	Organic Content (%)
40 - 1	13.5 -18.5	Dark gray organically sandy silt (ML-OL)	174.9	55.6	-
40 - 1	23.5 – 28.5	Dark gray organically clayey sand (SC-OL)	108.6	43.1	11.0
40 - 04	6 - 8	Dark gray organic sand (OL)	124.6	11.4	29.0
40 - 06	6 – 13.5	Dark brown silty fine sand with organics (SM-OL)	91.5	16.1	-
40 - 07	6 – 8.5	Dark gray organic sand (OL)	124.7	45.3	-
50 - 4	2.5 - 4	Dark gray organic silt (ML-OL)	154.8	61.4	-
EX-1	5 - 6	Dark Brown Peat (PT)	298.2	12.9	52.9

The recovered samples were not evaluated, either visually or analytically, for chemical composition or environmental hazards. UES would be pleased to perform these services for an additional fee, if required. The samples will be retained in our laboratory for 30 days from the date of this report and then discarded, unless we are notified otherwise in writing.

2.4 Geomorphic Conditions

The geology of the site (landside) as mapped on the USDA Soil Survey website consists of Urban land, 0 to 2 percent slopes (23) and Arents, 0 to 2 percent (36). **These are sandy soils and organic soils are not indicated.** However, since Arents are areas where the soils have been generally altered by grading, shaping, and covered with fill, the soils can be variable. Note that the Soil Survey generally extends to a maximum depth of 80 inches below ground surface and is not indicative of deeper soil conditions.

Boring logs resulting from our field exploration are presented in Appendix D - Log of Boring Records. The logs contain the soil descriptions, the standard penetration test (SPT) N-values, and the hand cone penetrometer (HCP) values logged during the drilling and sampling activities. Note that the soil boring data reflect information from the specific test locations only and the soil conditions may vary between the strata interfaces indicated on the logs. The soil classifications

and descriptions shown on the logs are generally based upon visual characterizations of the recovered samples using the Unified Soil Classification System. See Appendix E - Discussion of Soil Groups, for a detailed description of various soil groups.

The subsurface soil conditions encountered in the waterside borings generally consisted of very loose to dense fine sand (SP), shelly sand (SP), fine sand with silt (SP-SM), and silty fine sand (SM) to the termination depths.

The subsurface soil conditions encountered in the landside borings generally consisted of very loose to medium dense fine sand (SP), shelly sand (SP), fine sand with silt (SP-SM), silty fine sand (SM), fine sand with clay and firm lean clay (CL) to the termination depths. Layers of organic soils or "muck," with varying amounts of organic contents (OL, SM-OL, ML-OL, SC-OL, SC-OL, SP-SM-OL and PT) were also encountered in borings 40-1, 40-2, 40-4, 40-6, 40-7, 40-8, 50-4, and EX-1 which are in locations that impact every building on the site. The organic soil layers were present at varying depths from 2.5 to 28.5 feet of the soil profile.

2.5 Exfiltration Testing

The exfiltration test was performed in accordance with the South Florida Water Management District method for open hole constant head field testing. The results are presented on the Exfiltration Test Report in Appendix F- Hydraulic Conductivity Tests. The hydraulic conductivity (K) value determined at the test site is presented in the table below.

Test Location	K (cfs/ft^2-ft)
EX-1	1.19 X 10^{-04}
EX-2	1.84 X 10^{-04}
EX-3	5.46 X 10^{-04}

2.6 Hydrogeological Conditions

On the dates of our field exploration (August 23-26, and September 8, 10, 11, 15 & 16, 2021), the mudline was encountered in the waterside borings at approximate depths of 4 to 10 feet below the water surface. Groundwater was encountered in the landside borings at approximate depths of 3 to 7 feet below the existing ground surface. The groundwater table typically fluctuates seasonally depending upon local rainfall and other site specific and/or local influences, including tidal variations in the Stuart Channel. Brief ponding of stormwater may occur across the site after heavy or extended rainfall events.

No additional evaluation was included in our scope of work in relation to the wet seasonal high groundwater table or any existing well fields in the vicinity. Well fields may influence water table levels and cause significant fluctuations. If a more comprehensive water table analysis is necessary, please contact our office for additional guidance.

3.0 ENGINEERING EVALUATION AND RECOMMENDATIONS

3.1 General

Our geotechnical engineering evaluation of the site and subsurface conditions at the property, with respect to the planned construction, and our recommendations for foundation design, pavement design, and site preparation, are based upon (1) our site observations, (2) the field data obtained, and (3) our understanding of the project information and structural conditions as presented in this report. If the stated conditions are incorrect, or if the project description is revised, please inform UES so that we may review our recommendations with respect to any modifications.

We note that the applicability of geotechnical recommendations is very dependent upon project characteristics, specifically (1) improvement locations, (2) grade alterations, (3) and actual applied structural loads. For that reason, UES must be provided with and review the preliminary and final site and grading plans, and structural design loads to validate all recommendations provided in this report. Without performing this review, our recommendations should not be relied upon for final design or construction of any site improvements.

3.2 Driven Pile Foundations

Based on the results of the borings, the recommended deep foundations to support the floating docks to which we have been informed by you that the intension is to tie concrete floating wave attenuators anchored to steel pipe piles. We have assumed that the pipe piles utilized will be closed end piles. The results of our pile capacity analysis are summarized in Table 3.2.1 below. The evaluations were performed using the commercially available ALLPILE 7.0 software with a factory of safety of 2.

Table 3.2.1 - Summary of Driven Pile Capacities (Closed End Steel Pipe Piles)

Location	Pile Diameter (inches)	Pile Embedment Depth [1] (feet)	Allowable Compression Capacity [2] (tons)	Allowable Tension Capacity [3] (tons)
Floating Docks	14	35	12.8	6.2
	16	35	16.8	7.6

[1] Embedment depth is based upon UES's local experience, the results of the SPT borings, and is measured from the mudline.
[2] Allowable capacity if driven into medium dense soils.
[3] Some types of piles are limited in their tensile load capacities. The designer must check with the manufacturer so that this maximum tensile load is not exceeded.

UES recommends a minimum center-to-center pile spacing of 3 times the nominal pile diameter or dimension. The pile lengths presented in the above tables represent our best engineering

value for cost estimates in any bid preparation. Unit costs per foot for added or subtracted pile length should also be included in any bid document.

The contractor should submit information about the intended pile driving hammer and cushions to be used for approval by the project Geotechnical Engineer. Prior to installation of the production piles for the project, two (2) test piles should be driven at the boring locations. After the test piles are driven, the results should be reviewed by the project Geotechnical Engineer. Following the monitoring and evaluation of the test pile program by UES, production pile lengths and driving criteria can be established.

UES should be retained to monitor the installation of the driven pile foundation system for this project. UES's pile installation monitoring services will include monitoring the installation of each pile, documenting the number of hammer blows required to drive each pile for each linear foot, and evaluation of the pile driving records. Once the pile driving equipment to be used for this project has been determined, UES will establish pile driving criteria (i.e., the required number of blows per foot to ensure the required capacity is achieved) for this project. Each pile should be driven until the established driving criteria have been achieved.

Piles should be driven with a hammer having a minimum energy proportionate to the size of the pile being driven. All pile driving operations should be performed in accordance with industry standards, applicable building codes, and the guidelines published by the Deep Foundations Institute (DFI).

3.3 Augered Cast-In-Place (ACIP) Pile Foundations

UES recommends that the proposed three-level building along with the other three single story buildings be supported by a deep foundation system consisting of augered cast-in-place (ACIP) piles. ACIP pile design should be in accordance with the applicable sections of the 2020 Florida Building Code, Seventh Edition, the latest edition of the Deep Foundations Institute's Augered Cast-In-Place Piles Manual, and other applicable federal, state, and local requirements.

3.3.1 ACIP Pile Foundation Design

The results of our ACIP pile capacity analysis are summarized in Table 3.3.1.1 and 3.3.1.2 below. The evaluations were performed using the commercially available ALLPILE 7.0.

Table 3.3.1.1 - ACIP Pile Design Recommendations for 14-Inch Diameter Piles

Nominal Pile Diameter (in)	Pile Top Elevation	Recommended Pile Tip Elevation	Pile Length (feet)	Maximum Allowable Pile Compression Capacity (tons)	Pile Allowable Tension Capacity (tons)	Grout Strength (psi)
14	Unknown	Unknown	30	15.6	5.4	5,000
14	Unknown	Unknown	40	20.3	8.3	5,000

Table 3.3.1.2 - ACIP Pile Design Recommendations for 16-Inch Diameter Piles						
Nominal Pile Diameter (in)	**Pile Top Elevation**	**Recommended Pile Tip Elevation**	**Pile Length (feet)**	**Maximum Allowable Pile Compression Capacity (tons)**	**Pile Allowable Tension Capacity (tons)**	**Grout Strength (psi)**
16	Unknown	Unknown	30	21.6	6.5	5,000
16	Unknown	Unknown	40	28.1	10.5	5,000

The design pile depths in the above table are based on installing the piles at the site grade existing at the boring locations at the time of drilling. Any fill required to raise the site to achieve design grade will result in the piles being longer based upon the thickness of the placed fill. If piles having depths and/or capacities other than those presented in the above table are desired, UES will be pleased to provide further recommendations upon request.

The following notes are also applicable to the ACIP pile design:

1. UES assumed that the piles will have a minimum of 1 percent steel reinforcement for the analysis. ACIP piles should be reinforced over their entire length for tension capacity. The reinforcement should be designed by the project Structural Engineer.

2. Structural stresses in the piles may impose a more severe limitation on the design capacity. Therefore, we recommend the allowable stresses be verified for the selected pile section by the project Structural Engineer.

3. The pile reinforcement should be sufficiently embedded in the pile cap to afford a fixed end connection, as required.

3.3.2 ACIP Pile Foundation Installation

Pile installation should be in accordance with the applicable sections of the 2020 Florida Building Code, Seventh Edition and other applicable federal, state, and local requirements. In addition, piles should be installed in accordance with the following:

1. Pile Length - The proposed piles should be installed as determined by the inspecting Geotechnical Engineer.

2. Spacing - Piles installed in groups should be spaced at a center-to-center distance of not less than 3 pile diameters.

3. Plan Location - The center of the top of any pile at cut-off should be displaced laterally no more than 3 inches from the position shown on the plans. This applies to both single piles and piles installed in groups.

4. Vertical Alignment - The vertical alignment of the piles should not deviate from the plumb by more than 1/4 inch per foot of length.

5. Reinforcing Cage Positioning - The top of the reinforcing cages installed in the piles should not be more than 6 inches above and no more than 3 inches below the positions shown in the plans. The reinforcing cages should be positioned concentrically within the grouted pile shaft. The grout cover over longitudinal reinforcing bars should not be less than 3 inches. Reinforcing centralizers should be placed at maximum spacing of 15 feet at the lower portion of the pile and at 5 feet from the top of the cage.

6. Adjacent Piles - A minimum elapsed time of 12 hours should be specified for the installation of piles located within 5 feet, center-to-center, of each other.

7. Grout Factor - The minimum acceptable grout factor (i.e., actual grout volume divided by the theoretical grout volume) should be 1.1.

3.4 Soil Parameters for Bulkhead Sheet Pile Design

UES understands that Straticon intends on redoing bulkhead with sheet piling which can be accomplished utilizing either an anchored or cantilever system. For either design, soil parameters will be necessary for both soil stability analysis and final design. Tables 3.4.1, 3.4.2 and 3.4.3 present recommended soil parameters for design of the sheet pile walls based on the results of the borings per the FDOT Soils and Foundations Handbook 2021. Note that the soil layers were grouped based on notable changes in relative density and USCS classification.

Table 3.4.1
Sheet Pile Soil Parameters: Boring 30-1

Depth** (feet)	Soil Description	Avg. N-Value	Wet Unit Weight γ_t (pcf)	Sub. Unit Weight γ_{sub} (pcf)	Friction Angle (deg)	K_a	K_p	K_o	Horiz. Subgrade Modulus k (pci)*
0 - 4	Fine sand (SP)	8	113	50	29	0.35	2.88	0.52	25
4 – 8.5	Fine sand (SP)	2	102	40	26	0.39	2.56	0.56	10
8.5 – 30	Fine sand (SP)	7	113	50	29	0.35	2.88	0.52	25

Table 3.4.2
Sheet Pile Soil Parameters: Boring 30-2

Depth** (feet)	Soil Description	Avg. N-Value	Wet Unit Weight γ_t (pcf)	Sub. Unit Weight γ_{sub} (pcf)	Friction Angle (deg)	K_a	K_p	K_o	Horiz. Subgrade Modulus k (pci)*
0 - 4	Fine sand (SP)	10	113	50	30	0.33	3.00	0.50	50
4 – 28.5	Fine sand (SP) and silty sand (SM)	2	102	40	26	0.39	2.56	0.56	10
28.5 – 30	Fine sand (SP)	13	113	50	30	0.33	3.00	0.50	50

*Submerged condition
**Indicated depth is depth below grade at respective boring location

Table 3.4.3
Sheet Pile Soil Parameters: Boring 30-3

Depth** (feet)	Soil Description	Avg. N-Value	Wet Unit Weight γ_t (pcf)	Sub. Unit Weight γ_{sub} (pcf)	Friction Angle (deg)	K_a	K_p	K_o	Horiz. Subgrade Modulus k (pci)*
0 - 4	Fine sand (SP)	19	118	55	32	0.31	3.25	0.47	75
4 – 28.5	Fine sand (SP) and silty sand (SM)	4	108	40	28	0.36	2.77	0.53	15
28.5 – 30	Fine sand (SP)	5	113	50	29	0.35	2.88	0.52	25

*Submerged condition
**Indicated depth is depth below grade at respective boring location

We recommend that the sheet piles be installed in accordance with Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 2019, Section 455-9, Structures Foundations – Sheet Piling. All sheet piles should be cut off true to line and grade, with any excess steel or damaged sections be removed or replaced. If rock or dense soils are encountered as such to prevent the installation of sheet piles via driving or punching, these soils will need to be removed via acceptable means such as excavation and backfilling.

3.5 Anchor Pile Design

UES understands that if a cantilever system for the sheet pile is deemed inefficient for the project, that anchor piles are an alternate option to laterally stabilize the sheet pile. Other options may include whalers, batter piles, dead-men anchors and tie-backs, grout anchors, or helical anchors. Construction of the new bulkhead is feasible utilizing piles either by installing horizontally loaded piles immediately upland or immediately waterward of the bulkhead.

Based on the soil profile revealed by the SPT borings, it is UES's opinion that the proposed bulkhead can be supported utilizing laterally stabilizing piles. Due to the multitude of pile design options that may be suitable for this project, UES has not performed pile analysis at this time. Once Straticon has narrowed down options for the design, elevations, and locations of the piles, UES will perform pile analysis.

3.6 Site Preparation

Initial site preparation should consist of removing all surface vegetation, near surface roots, and other deleterious materials within, and to five (5) feet beyond, the perimeter of the footprint of the planned construction. Foundations and the below grade remains of former structures that are within the footprint of the new construction should also be removed. Similarly, utility lines should be removed or properly abandoned so that they will not adversely impact new overlying structures

3.7 Fill Placement and Compaction

Prior to initiating fill placement, the stripped surface should be compacted until the upper 2 feet of soil achieves at least 95 percent of modified Proctor maximum dry density (ASTM D 1557). We recommend using a steel drum vibratory roller having sufficient static weight to achieve the required compaction. Density tests should be performed on the compacted surface at a frequency of not less than one test per 2,500 square feet, or a minimum of three (3) tests, whichever is greater. The density tests should be performed using either the nuclear method (ASTM D 6839) or the sand cone method (ASTM D 1556). Hand Cone Penetrometer (HCP) tests may also be performed to evaluate soil density.

Fill required for the project should be inorganic (i.e., contain less than 5 percent by weight organic material) and classified as SP, SW, GP, GW, SP-SM, SW-SM, GW-GP, or GP-GM. **UES does not recommend using fill having silt/clay-size soil fines contents exceeding 12 percent.** In general, fill required to attain design grades should be placed in maximum 12-inch thick loose lifts and compacted to at least 95 percent of modified Proctor maximum dry density (ASTM D 1557). Each lift of fill should be compacted and tested prior to the placement of the next lift. Density tests should be performed within the fill at the same frequency noted above.

Following installation of the ACIP piles and construction of the pile caps and grade beams, the areas next to the pile caps and grade beams will require backfilling. This fill should be placed in maximum 8-inch thick loose lifts and compacted to at least 95 percent of modified Proctor maximum dry density (ASTM D 1557). The compaction should be performed using portable equipment, such as vibratory sleds, jumping jacks, or walk-behind rollers.

3.8 Quality Control and Vibration Monitoring

We strongly recommend that a UES representative be on site throughout the driven pile and ACIP pile installation. This is necessary to determine if the piles are being installed in accordance with the project plans and specifications, provide an accurate record of the installation, and provide an opportunity to correct any anomalous conditions during the pile placement work. In addition, the grout mix used to form the ACIP piles should be sampled and tested for strength on a regular basis.

The proposed construction will be close to structures and roadways that may be susceptible to damage from vibrations generated at the site. UES recommends that during all aspects of construction, nearby buildings and bordering landmarks be monitored using a seismograph to determine the magnitude of vibrations impacting these structures. The seismograph should have the capability to measure ground velocities along vertical, transverse, and longitudinal axes. The project Structural Engineer should establish the allowable ground velocities that the bordering facilities can safely withstand without experiencing damage. A representative from our office can monitor the vibration disturbance of adjacent structures. A proposal for providing these services will be provided upon request.

4.0 PAVEMENT AREA DESIGN AND CONSTRUCTION CONSIDERATIONS

4.1 Organic Soil Remediation

A substantial portion of the subject property will consist of paved parking areas and drive lanes. Based on the results of our borings, organic soils were encountered to varying depths within portions of the site. Complete removal and replacement of the organic soils within pavement areas would not be an economically viable option for this project due to the depth of the organic soils. **Therefore, it is our opinion that a partial excavation program and construction of a geogrid reinforced subgrade section would be a practical remedial option to extend the useful life of pavements constructed over the organic soils.** Detailed recommendations for a geogrid reinforced section are presented in Section 4.10 below.

4.2 Pavement Design Sections

The pavement sections were designed considering assumed traffic loading and previous experience with similar projects. Flexible pavement sections in the geographic area typically consist of an asphaltic wearing course, a base course, and a stabilized subgrade layer. Rigid pavements are constructed either directly upon prepared soil subgrades or upon a base course and stabilized subgrade for heavier loads.

Based on our prior experience and the assumed traffic loading criteria, recommended pavement section thicknesses are provided in Table 4.2.1 below.

Table 4.2.1 - Design Pavement Sections

Pavement Type	Layer	Material Description	Layer Thickness	
			Light Duty	Heavy Duty
Flexible	(A)	Asphalt Wearing Surface FDOT SP-9.5 or SP-12.5	1.5	2.5
	(B)	Base rock (minimum LBR of 100), compacted to 98 percent of modified Proctor maximum dry density	6	8
	(SSG)	Stabilized subgrade (minimum LBR of 40), compacted to 98 percent of modified Proctor maximum dry density	12	12
	STRUCTURAL NUMBER (SN)		**2.7**	**3.5**
Rigid	(C)	FDOT Portland Cement Concrete	NA	8
	(B)	Base rock (minimum LBR of 100), compacted to 98 percent of modified Proctor maximum dry density	NA	-
	(CSG)	Soil subgrade compacted to 98 percent of modified Proctor maximum dry density	NA	12

4.3 Compacted Subgrade or Embankment Fill

The subgrade or embankment fill is the layer that supports the structural pavement section. Subgrade and embankment fill should be constructed following the criteria and procedures presented in Section 4.10 of this report.

4.4 Stabilized Subgrade

The stabilized subgrade is the portion of the pavement section between the compacted subgrade or embankment fill and the base course. We recommend that subgrade material be compacted to at least 98 percent of modified Proctor maximum dry density (AASHTO T-180). The stabilized subgrade material should have a minimum Limerock Bearing Ratio (LBR) value of 40. Compliance tests should be performed upon the stabilized subgrade for full depth at a frequency of one test per 5,000 square feet, or at a minimum of two test locations, whichever is greater.

4.5 Base Course

The base course is the portion of the pavement section between the surface course and stabilized subgrade. In areas where separation of at least 1.5 feet between the estimated wet seasonal high groundwater table and the bottom of the base material occurs, we recommend the base course be limerock or cemented coquina having a minimum Limerock Bearing Ratio (LBR) value of 100. The base material should be obtained from an approved source. The base material should be placed in maximum 6-inch thick lifts and compacted to at least 98 percent of modified Proctor maximum dry density (AASHTO T-180).

If the separation between the estimated wet seasonal high groundwater table and the bottom of the base material is less than 1.5 feet, we recommend that asphaltic concrete base (FDOT SP-12.5) be used in lieu of limerock or cemented coquina. The subgrade should be mechanically stabilized (compacted) to a minimum of 98 percent of modified Proctor maximum dry density (AASHTO T-180). Compliance tests should be performed on the base course at a frequency of one test per 5,000 square feet, or a minimum of two test locations, whichever is greater.

4.6 Flexible (Asphalt) Pavement

Asphalt pavement should consist of either FDOT SP-9.5 or SP-12.5 asphaltic concrete. The mixes should be a current FDOT approved design for the materials used for the project. Samples of the materials delivered to the project should be tested to verify that the aggregate gradation and asphalt content satisfies the mix design specifications.

The asphalt should be compacted to meet the requirements of the latest edition of the FDOT *Standard Specifications for Road and Bridge Construction*. Compliance tests should be performed by obtaining cores to evaluate material thickness and density at a frequency of one test per 10,000 square feet, or a minimum of two test locations, whichever is greater.

4.7 Rigid (Concrete) Pavement

Rigid pavements should be constructed using concrete having a minimum 28-day compressive strength of 4,000 psi. Fill required to raise grades in pavement areas should be compacted to at least 98 percent of modified Proctor maximum dry density (AASHTO T-180).

The pavement slabs should be reinforced to make them as rigid as practical. Proper joints should be provided at the junctions of slabs so that a small amount of independent movement

can without causing structural damage. Construction and control joints should be accordance with current American Concrete Institute (ACI) and industry practices.

The pavement sections presented in this report are minimum pavement section thicknesses typically used for similar type projects. The pavement materials and construction procedures should conform to FDOT, ACI, or appropriate city/county requirements.

4.8 Effects of Water

Premature pavement section deterioration can occur due to intrusion of the wet season high groundwater table and/or improper surface water runoff management. We recommend the pavement areas be constructed to have a minimum separation of 1.5 feet between the wet season high groundwater table and the base course, regardless of the type of base material. In addition, we recommend that full-depth curb sections be designed and constructed. Using either extruded curb sections, which lie directly on top of the final surface course, or eliminating the curbing entirely, may allow runoff and/or irrigation water to migrate between the base and surface course. This condition can result in the separation of the surface course from the base course, causing a rippling effect, which results in premature deterioration of the pavement.

4.9 Construction Traffic

Incomplete pavement sections or pavement areas designed for light duty traffic will not perform satisfactorily under typical construction traffic loading. We recommend that all construction traffic (i.e., construction equipment, vehicles, etc.) either be re-routed away from these areas or the pavement sections be designed to support construction phase loading conditions.

4.10 Pavement Site Preparation

Our recommendations for preparation of the site for pavement construction are noted below. This approach to improving and maintaining site soils has been found to be successful with similar soil conditions.

1. The proposed construction limits should be cleared, stripped, and grubbed of all surface vegetation, topsoil, and associated root systems to depths of their vertical reaches. This should be performed within and to a distance of 5 feet beyond the limits of the pavement areas.

2. **Where organic soils and buried wood debris are encountered, we recommend undercutting the organic soils to a depth of at least 3 feet below the base course elevation and backfilling with compacted clean sand. If organic soils and/or wood debris are present at the bottom of the excavations, we recommend placing a separation geotextile along the excavation bottom to facilitate placement and compaction of the backfill soils. An initial "bridge" lift of sand fill may be necessary to prevent damage to the separation geotextile during the compaction operations.**

   After backfilling the excavations and construction of the stabilized subgrade layer, Tensar TX-160 geogrid should be installed above the stabilized subgrade (i.e.,

immediately below the base course layer). The installation of the geogrid will significantly improve the performance of the pavement section and reduce the amount of maintenance over the pavement design life. Note that additional layers of geogrid may be required depending on final grading design.

3. Prior to initiating fill operations within the remainder of the pavement areas, the existing ground surface should be compacted (proof rolled) using a steel drum vibratory roller having sufficient static weight and vibratory impact energy to achieve the required compaction. After completing the proof rolling, density tests should be performed at a frequency of one test per 5,000 square feet, or at a minimum of two test locations, whichever is greater, to confirm a minimum compaction compliance of 98 percent of modified Proctor maximum dry density (AASHTO T-180).

4. Fill material should be inorganic (classified as SP/GW) containing not more than 5 percent (by weight) fibrous organic materials. **Fill material having silt/clay-size fines contents greater than 5 percent should not be used, including cyclone sand material.** The fill should be placed in maximum 12-inch thick lifts. Each lift should be compacted to a minimum density of 98 percent of modified Proctor maximum dry density (AASHTO T-180).

5. Compliance density tests should be performed within the fill at a frequency of not less than one test per 5,000 square feet per lift, or at a minimum of two test locations, whichever is greater.

6. Representative samples of both on-site and import materials proposed for use as fill should be obtained and tested to determine compliance with the project specifications. The testing should include moisture-density relations (AASHTO T-180) and particle size analysis.

7. The contractor should consider the contours contained on the final grading, paving, and drainage plans when executing backfilling and compaction operations.

5.0 REPORT LIMITATIONS

This consulting report has been prepared for the exclusive use of Straticon and members of the design team for the proposed Atlantic Point Yacht Club project located at in Stuart, Florida. This report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty, either express or implied, is made.

The evaluation submitted in this report is based in part upon the data collected during a field exploration. However, the nature and extent of variations throughout the subsurface profile may not become evident until construction. If variations then appear evident, it may be necessary to reevaluate information and professional opinions provided in this report. In the event changes are made in the nature, design, or location of the proposed construction, the evaluation and opinions contained in this report should not be considered valid unless the changes are reviewed, and conclusions modified or verified in writing by UES.

UES should be provided the opportunity to review the final project plans and specifications to determine if UES's recommendations have been properly interpreted, communicated, and

implemented. If UES is not afforded the opportunity to participate in construction related aspects of site grading and foundation installation as recommended in this report or any report addendum, UES cannot accept responsibility for the interpretation of our recommendations made in this report or in a report addendum for foundation or pavement performance.

6.0 BASIS FOR RECOMMENDATIONS

The recommendations submitted in this report are based on the data obtained from the tests performed at the locations indicated on the Test Location Plans in Appendix B. This report does not reflect any variations which may occur between borings. While the borings are representative of the subsurface conditions at their respective locations and for their vertical reaches, local variations characteristic of the subsurface soils of the region are anticipated and may be encountered. The delineation between soil types shown on the boring logs is approximate and the descriptions represent our interpretation of the subsurface conditions at the designated boring locations on the specific dates drilled.

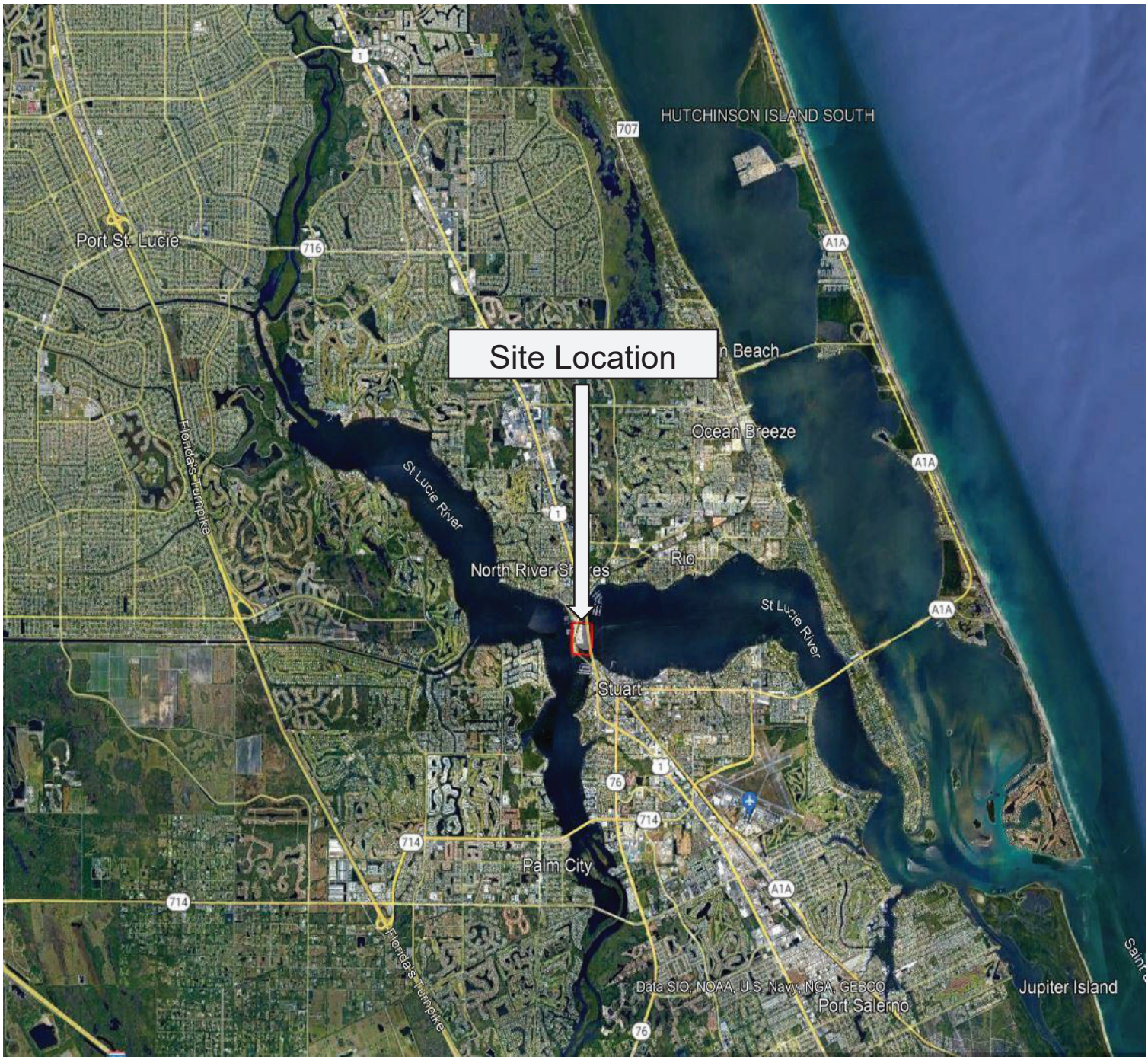
Any third-party reliance of our geotechnical report or parts thereof is strictly prohibited without the express written consent of Universal Engineering Sciences. The applicable SPT methodology (ASTM D 1586) and auger boring methodology (ASTM D 1452) used in performing our borings, and for determining penetration resistance and soil relative density, is specific to the sampling tools utilized and does not reflect the ease or difficulty to advance other tools or materials.

Appendix A - Vicinity Map

Site Vicinity Map

Atlantic Point Yacht Club
75 NW Flagler Avenue, Stuart, Florida

Project No.3330.2100209.0000	**Drafted by: JR**	**Reviewed By: AA**	**Date: 09/27/2021**



Appendix B - Test Location Plan

Test Location Plan

Atlantic Point Yacht Club
75 NW Flagler Avenue, Stuart, Florida

Project No.: 3330.2100209.0000	Drafted by: JR
Date: 9/27/2021	Reviewed By: AA

Appendix C - Notes Related to Borings

NOTES RELATED TO BORING RECORDS AND GENERALIZED SUBSURFACE PROFILES

1. Groundwater levels (if encountered) were recorded either during or following the boring completion on the date indicated. Fluctuations in groundwater levels are common - see the report text for a discussion.
2. The boring locations were identified in the field by estimated distances and offsets from existing reference marks and/or other site landmarks.
3. The completed boreholes were backfilled to adjacent site grade using drilling spoils and patched with asphalt cold mix in pavement areas.
4. The Log of Boring records represent our interpretation of soil conditions based on visual classification of the soil samples recovered from the borings.
5. The Log of Boring records are subject to the limitations, conclusions, and recommendations presented in the report text.
6. The Standard Penetration Test (SPT) N-values contained on the Log of Boring records refer to the total blow counts of a 140-pound drop hammer falling 30 inches required to drive a split-barrel sampler a total distance of 12 inches into soil strata at specific depth intervals.
7. The Hand Cone Penetrometer (HCP) values contained on Log of Boring records and the Cone Penetration Test (CPT) values contained on the Cone Penetration Sounding logs refer to the cone tip resistance recorded when pushing the cone tip into the soil strata at specific depth intervals.
8. The soil and/or rock strata interfaces shown on the Log of Boring records are approximate and may vary from those shown on the logs. The soil and/or rock descriptions shown on the Log of Boring records refer to conditions at the specific location tested. Soil/rock conditions may vary between test locations.
9. Relative density for coarse-grained soils (sands/gravels) and consistency for fine-grained soils (silts/clays) are described as follows:

Coarse Grained Soils (Sands and Gravels)				Fine Grained Soils (Silts and Clays)			
SPT N-Value	HCP Value (kg/cm^2)	CPT Value (tsf)	Relative Density	SPT N-Value	HCP Value (kg/cm^2)	CPT Value (tsf)	Consistency
0-4	0-16	0-20	Very Loose	0-2	0-20	0-3	Very Soft
5-10	17-36	21-40	Loose	3-4	21-35	4-6	Soft
11-30	37-116	41-120	Med. Dense	5-8	>35	7-12	Firm
31-50	117-196	121-200	Dense	9-15		13-25	Stiff
>50	> 196	>200	Very Dense	16-30		26-50	Very Stiff
				>30		>50	Hard

10. Grain size descriptions are as follows:

Description	Particle Size Limits
Boulder	Greater than 12 inches
Cobble	3 to 12 inches
Coarse Gravel	3/4 to 3 inches
Fine Gravel	No. 4 sieve to 3/4 inch
Coarse Sand	No. 10 to No. 4 sieve
Medium Sand	No. 40 to No. 10 sieve
Fine Sand	No. 200 to No. 40 sieve
Fines (Silt/Clay)	Smaller than No. 200 sieve

11. Definitions for modifiers used in soil/rock descriptions:

Proportion	Modifier	Approximate Root Diameter	Modifier
<5%	Trace	Less than 1/32"	Fine roots
5% to 12%	Little	1/32" to 1/4"	Small roots
12% to 30%	Some	1/4" to 1"	Medium roots
30% to 50%	And	Greater than 1"	Large roots

Organic Soils: Soils containing vegetative tissue in various stages of decomposition having a fibrous to amorphous texture. Usually having a dark brown to black color and an organic odor.
Organic Content Modifiers: <25%: Slightly to Highly Organic; 25% to 75%: Muck; >75%: Peat

Appendix D - Land Boring Logs

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/20/21 10:45 - Y:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

Universal Engineering Sciences
607 NW Commodity Cove
Port Saint Lucie, Florida 34986
(772) 924-3575

LOG OF BORING B- 30-1

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 30 ft
HOLE DIAMETER 3 in
DRILLER MJ/RV
DATE STARTED 8/26/21
COMPLETED 8/26/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
	X	1	5 6 5 7	11		Gray fine sand (SP)			
	X	2	3 4 3 4	7					
5	X	3	0 0 0 0	WOH					
						6.0 ▽			
	X	4	1 2 1 2	3		Dark gray fine sand (SP)			
	X	5	3 4 4 4	8		8.5			
10						Gray fine sand (SP)			
	X	6	1 2 2	4					
15									
	X	7	0 1 4	5					
20									
	X	8	1 2 4	6					
25									
						28.5			
	X	9	3 5 8	13		Gray fine sand and shell (SP)			
30						30.0			

Bottom of borehole at 30.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/20/21 10:45 - Y:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

Universal Engineering Sciences
607 NW Commodity Cove
Port Saint Lucie, Florida 34986
(772) 924-3575

LOG OF BORING B- 30-2

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 30 ft
HOLE DIAMETER 3 in
DRILLER MJ/PS
DATE STARTED 8/24/21
COMPLETED 8/24/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80 80			Light brown fine sand, trace root and shell fragments (SP)			
						2.0			
		2	80 60			Light brown fine sand, trace shell fragments (SP)			
						4.0			
5		3	30 30			Gray fine sand, trace shell (SP)			
		4	1 0 0 2	WOH		▽			
						8.0			
		5	1 2 1 3	3		Gray fine sand (SP)			
10									
						13.5			
		6	1 2 1	3		Gray fine sand, trace shell (SP)			
15									
						18.5			
		7	0 0 0	WOH		Gray fine sand (SP)			
20									
						23.5			
		8	1 1 1	2		Dark gray silty fine sand (SM)			
25									
						28.5			
		9	4 6 7	13		Gray fine sand, trace shell fragments (SP)			
30						30.0			

Bottom of borehole at 30.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/20/21 10:45 - Y:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 30-3

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 30 ft
HOLE DIAMETER 3 in
DRILLER MJ/MP
DATE STARTED 8/25/21
COMPLETED 8/25/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
	X	1	9 10 11 13	21		Gray fine cemented sand with rock (SP)			
						2.0			
	X	2	7 8 8 9	16		Brown fine sand, trace shell (SP)			
						4.0			
	X	3	3 4 4 3	8		Gray fine sand, trace shell (SP)			
5						▽			
	X	4	3 3 2 1	5					
	X	5	1 4 6 5	10					
10									
						13.5			
	X	6	0 0 1	1		Brown fine sand (SP)			
15									
	X	7	0 0 0	WOH					
20									
						23.5			
	X	8	0 0 0	WOH		Dark gray silty fine sand (SM)			
25									
	X	9	2 2 3	5					
30						30.0			

Bottom of borehole at 30.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-01

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/PS
DATE STARTED 8/23/21
COMPLETED 8/23/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80/80			Gray fine sand, trace shell fragments (SP)			
		2	80/70						
						4.0			
5		3	80/30			Brown fine sand, trace shell (SP)			
						6.0 ▽			
		4	1/0/0/1	WOH		Gray fine sand, trace shell (SP)			
		5	3/2/3/2	5					
10									
						13.5			
		6	0/0/0	WOH		Dark gray organic sandy silt (ML-OL)	174.9	55.6	
15									
						18.5			
		7	1/1/1	2		Gray fine sand (SP)			
20									
						23.5			
		8	0/0/0	WOH		Dark gray organic clayey sand (SC-OL)	108.6	43.1	11.0
25									
						28.5			
		9	2/5/6	11		Gray fine sand, trace shell (SP)			
30									
						33.5			
		10	4/5/5	10		Gray fine sand (SP)			
35									
		11	4/6/7	13					
40						40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-02

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/PS
DATE STARTED 8/23/21
COMPLETED 8/23/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80/80			Light brown fine sand, trace shell (SP)			
						2.0			
		2	50/60			Light gray fine sand (SP)			
						4.0			
5		3	80/80			Gray fine sand, trace shell fragments (SP)			
						6.0 ▽			
		4	3/5/6/8	11		Gray fine sand, trace shell (SP)			
						8.0			
		5	1/2/2/2	4		Dark gray fine sand, trace shell (SP)			
10									
						13.5			
		6	0/0/0	WOH		Dark gray fine sand (SP)			
15									
						18.5			
		7	1/3/2	5		Gray fine sand (SP)			
20									
						23.5			
		8	0/0/0	WOH		Dark gray organic sandy clay (CL-OL)			
25									
						28.5			
		9	4/7/8	15		Gray fine sand (SP)			
30									
						33.5			
		10	2/2/2	4		Gray fine sand, trace root (SP)			
35									
		11	3/3/4	7		40.0			
40						Bottom of borehole at 40.0 feet.			

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-03

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/PS
DATE STARTED 8/23/21
COMPLETED 8/23/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80 80			Gray fine sand (SP)			
						2.0			
		2	70 80			Brown fine sand, trace shell (SP)			
						4.0			
5		3	60 70			Light brown fine sand, trace shell (SP) ▽			
		4	4 4 3 4	7		8.0			
		5	2 3 3 2	6		Brown fine sand (SP)			
10									
		6	0 0 0	WOH					
15									
						18.5			
		7	0 0 0	WOH		Gray fine sand (SP)			
20									
						23.5			
		8	1 1 1	2		Dark gray clay (CL)			
25									
						28.5			
		9	2 3 5	8		Gray fine sand, trace shell (SP)			
30									
						33.5			
		10	2 4 6	10		Gray fine sand (SP)			
35									
		11	2 6 9	15		40.0			
40									

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-04

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER JB/RV/LO
DATE STARTED 9/15/21
COMPLETED 9/15/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 3.30 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	60 60			Brown fine sand, trace rock (SP)			
		2	50 40			3.0 ▽ 4.0 Light gray fine sand (SP)			
5		3	3 4 2 2	6		Gray fine sand (SP) 6.0			
		4	1 0 0 1	WOH		Dark Gray organic sand (OL) 8.0	124.6	11.4	29.0
10		5	4 6 10 11	16		Dark gray fine sand (SP) 13.5			
15		6	2 4 6	10		Gray fine sand, trace shell (SP) 18.5			
20		7	3 3 3	6		Gray fine sand (SP)			
25		8	2 2 3	5					
30		9	3 4 4	8		33.5			
35		10	6 7 7	14		Light gray fine sand and shell (SP)			
40		11	6 6 6	12		40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-05

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/MP
DATE STARTED 8/25/21
COMPLETED 8/25/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: **AT TIME OF DRILLING** ---
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80 80			Rock with light brown fine sand (SP)			
						2.0			
		2	60 60			Gray fine sand (SP)			
5		3	70 60			6.0			
	X	4	4 4 6 2	10		Brown fine sand, trace shell (SP)			
	X	5	3 4 6 5	10		8.0			
10						Gray fine sand, trace root (SP)			
						13.5			
	X	6	4 7 8	15		Gray fine sand (SP)			
15						18.5			
	X	7	1 1 2	3		Light brown fine to medium sand (SP)			
20						23.5			
	X	8	3 3 6	9		Gray fine sand (SP)			
25									
	X	9	4 6 9	15					
30									
	X	10	6 4 5	9					
35									
						38.5			
	X	11	5 4 4	8		Dark gray fine sand (SP)			
40						40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-06

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/RV
DATE STARTED 8/26/21
COMPLETED 8/26/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: **AT TIME OF DRILLING** ---
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
	X	1	8 7 7 9	14		Gray fine sand (SP)			
	X	2	7 7 8 10	15					
5	X	3	0 0 0 0	WOH					
	X	4	0 0 0 0	WOH		6.0 Dark brown silty fine sand organics (SM-OL)			
	X	5	0 0 0 3	WOH			91.5	16.1	
10									
						13.5			
15	X	6	3 4 5	9		Gray fine sand (SP)			
	X	7	1 1 1	2					
20									
	X	8	2 5 6	11					
25									
	X	9	3 5 5	10					
30									
						33.5			
	X	10	4 5 4	9		Light gray fine sand and shell fragments (SP)			
35									
						38.5			
	X	11	2 3 4	7		Gray fine sand, trace rock (SP)			
40						40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-07

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER JB/SC
DATE STARTED 8/25/21
COMPLETED 8/25/21
DRILL RIG D-25
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 3.80 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	60 40			0.1 Asphalt Base (1.3")			
						2.0 Brown fine sand, trace organics and roots (SP)			
		2	40 40			Gray fine sand (SP)			
						4.0 ▽			
5		3	3 4 4 1	8		Gray fine sand, trace shell fragments (SP)			
						6.0			
		4	1 1 0 0	1		Dark gray organic sand (OL)	124.7	45.3	
						8.5			
		5	3 4 5 6	9		Gray fine sand (SP)			
10									
						13.5			
		6	4 5 7	12		Gray fine sand, little shell (SP)			
15									
						18.5			
		7	1 1 1	2		Dark gray fine sand with shell fragments (SP)			
20									
						23.5			
		8	1 1 1	2		Gray fine sand, trace shell fragments (SP)			
25									
						28.5			
		9	2 2 1	3		Light brown fine sand (SP)			
30									
						33.5			
		10	1 1 1	2		Gray fine sand (SP)			
35									
						38.5			
		11	3 3 4	7		Light brown-gray clayey fine sand (SC)			
40						40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-08

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER JB/MR/LO/MP
DATE STARTED 9/16/21
COMPLETED 9/16/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 3.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	1 2 2 2	4		Light brown fine sand (SP)			
						2.0			
		2	2 3 2 2	5		▽ Gray fine sand (SP)			
5		3	2 1 2 1	3		5.0			
						6.0 Wood			
		4	1 0 0 0	WOH		Gray fine sand with silt, some organics (SP-SM-OL)			
						8.0			
		5	2 2 3 4	5		Gray fine sand (SP)			
10									
						13.5			
		6	3 5 5	10		Brown fine sand (SP)			
15									
						18.5			
		7	3 4 4	8		Gray fine sand (SP)			
20									
		8	2 3 2	5					
25									
		9	3 3 2	5					
30									
		10	5 7 6	13					
35									
		11	4 6 10	16					
40						40.0			

Bottom of borehole at 40.0 feet.

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LOG OF BORING B- 40-09

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER JB/SC
DATE STARTED 8/25/21
COMPLETED 8/25/21
DRILL RIG D-25
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 4.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	60 40			0.2 Asphalt Base (2")			
		2	30 20			2.0 Brown fine sand, trace organics and clay (SP) Dark gray fine sand, small root fibers (SP)			
5		3	1 2 1 2	3		4.0 ▽ Brown fine sand (SP)			
		4	2 1 2 2	3		8.0			
10		5	3 4 4 5	8		Light brown fine sand (SP)			
		6	2 2 3	5		13.5 Gray fine sand, trace shell fragments (SP)			
15						18.5			
20		7	3 4 5	9		Light brown fine sand (SP)			
25		8	4 5 6	11					
30		9	2 2 2	4					
		10	2 2 2	4		33.5 Gray fine sand (SP)			
35						38.5			
40		11	3 4 5	9		Gray fine sand, trace cemented sand (SP) 40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-10

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/MP
DATE STARTED 8/25/21
COMPLETED 8/25/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80 80			Light brown fine sand, trace shell fragments (SP)			
		2	70 60						
4.0									
5		3	60 60			Brown fine sand, trace shell (SP)			
6.0 ▽									
		4	4 3 3 2	6		Gray fine sand with shell fragments (SP)			
8.0									
		5	5 5 6 7	11		Gray fine sand (SP)			
10									
13.5									
		6	2 6 7	13		Brown fine sand (SP)			
15									
18.5									
		7	4 4 6	10		Light brown fine sand with shell (SP)			
20									
23.5									
		8	4 7 8	15		Gray fine sand (SP)			
25									
28.5									
		9	2 3 3	6		Gray fine sand, trace shell fragments (SP)			
30									
		10	2 2 2	4					
35									
38.5									
		11	3 3 4	7		Brown fine sand, trace shell fragments (SP)			
40						40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 40-11

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/PS
DATE STARTED 8/24/21
COMPLETED 8/24/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 6.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
		1	80/80			Light brown fine sand (SP)			
						2.0			
		2	80/80			Gray fine sand (SP)			
						4.0			
5		3	80/80			Brown fine sand, some shell fragments (SP)			
						6.0 ▽			
		4	4/6/7/5	13		Gray fine sand, some shell fragments (SP)			
						8.0			
		5	5/5/3/4	8		Gray fine sand, trace shell fragments (SP)			
10									
						13.5			
		6	1/2/2	4		Brown fine sand (SP)			
15									
		7	0/0/0	WOH					
20									
						23.5			
		8	0/0/0	WOH		Dark gray clay (CL)			
25									
						28.5			
		9	0/1/1	2		Gray fine sand, trace shell fragments (SP)			
30									
						33.5			
		10	2/6/8	14		Gray fine sand (SP)			
35									
						38.5			
		11	5/4/5	9		Gray fine sand, trace shell fragments (SP)			
40						40.0			

Bottom of borehole at 40.0 feet.

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LOG OF BORING B- 40-12

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yacht Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DRILLING CONTRACTOR Universal Engineering Sciences
HOLE DEPTH 40 ft
HOLE DIAMETER 3 in
DRILLER MJ/PS
DATE STARTED 8/24/21
COMPLETED 8/24/21
DRILL RIG GeoProbe
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 7.00 ft
METHOD SPT
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

DEPTH (ft)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	N VALUE	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
	X	1	15 12 12 14	24		Light brown fine sand, some cemented sand and rock (SP)			
						2.0			
	X	2	10 12 13 9	25		Light brown-dark brown organically stained fine sand (SP)			
						4.0			
5	X	3	8 6 8 7	14		Gray fine to medium sand (SP)			
	X	4	4 4 3 3	7		▽			
						8.0			
	X	5	2 1 1 3	2		Brown fine sand, trace root (SP)			
10									
						13.5			
	X	6	1 2 1	3		Brown fine sand (SP)			
15									
						18.5			
	X	7	1 2 2	4		Dark gray fine sand, trace shell fragments (SP)			
20									
						23.5			
	X	8	0 0 0	WOH		Dark gray fine sand, trace shell (SP)			
25									
						28.5			
	X	9	4 7 8	15		Gray fine sand, trace shell (SP)			
30									
						33.5			
	X	10	4 5 7	12		Gray fine sand, trace shell fragments (SP)			
35									
	X	11	5 4 6	10					
40						40.0			

Bottom of borehole at 40.0 feet.

SPT LOGS - GFA DATA TEMPLATE.GDT - 9/29/21 10:48 - V:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB & MARINA RE

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LOG OF BORING B- 50-4

I NOC 3 9Y 7

CLIENT hry(r2)f n u f ndry&)r2i n hsyl 2)sd
PROJECT NAME Nr[)nr2) l f 2nr p( ) G r u D3a %b (y2n(v sSs l sl[)-k snr
PROJECT NUMBER 4446H736676AH6666
PROJECT LOCATION / 5 , R Y[)8[3yNl sn&sPhr&(yrPY[)yZ5(
DRILLING CONTRACTOR L n2 syd(DCn82nssy2n8 h) 2sn) sd
HOLE DEPTH 56 er **HOLE DIAMETER** 4 2n
DRILLER TWUV EU19
DATE STARTED AU35U73 **COMPLETED** AU35U73
DRILL RIG Osf l yf as
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 4H06 er
METHOD h l c
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

o Cl cV gPB	hNb l 1C	hNb l 1C , Lb WCv	W!9 R u 9 L, ch	, EN1L C	Ov Nl VFu 19 O	b NcCv FN1 o Chuv Ff cF9 ,	b 9 FhcL v C u 9 , cC, c g B	YF; Ch u 9 , cC, c g B	9 v ON, Fu u 9 , cC, c g B
		3	56 76			128Gray fi n e2ns d(nSPry( ) s dGsDDey(8k snrd ghl B			
		7	36 36			7H5 o(yt 8y(mfy8(2) d2Dgp 1.9 1B ▽ 0H6	350HJ	M3H0	
5		4	6 6 6 6	R 9 V		Wyfi n e2ns d(nSPry( ) s yf f rd ghl B MH6			
		0	3 7 3 7	4		o(yt 8y(me2ns d(nS ghl B JH6			
		5	7 4 0 0	/		Wyfi n e2ns d(nS ghl B			
36						34H5			
		M	3 6 3 6	3		o(yt 8y(me2ns d(nS ghl B			
35						3JH5			
		/	3 3 3	7		Oy(me2ns d(nS ghl B			
76									
		J	7 4 0	/					
75									

(Continued Next Page)

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LOG OF BORING B- 50-4

I NOC 7 9Y 7

CLIENT hry(r2)f n u f ndry&)r2 n hsyl2sd

PROJECT NAME Nrl0nr2) l f 2nr p( )G ruB3a %b (y2n(v sSsIsl5D-k snr

PROJECT NUMBER 4446H736676AH6666

PROJECT LOCATION / 5 , R YD08B3yNl sn&sPhr&(yrPYD1y2S(

o Cl cV gr#B	hNb l 1C	hNb l 1C , Lb WCv	Wt9 R u9L, ch	, EN1L C	Ov Nl VRu 19 O	b NcCv rFN1 o Chuv Ff cF9,	b 9 RhcL v C u9, cC, c g B	YF, Ch u9, cC, c g B	9v ON, Ru u9, cC, c g B
						Oy(me2ns d(nS ghl B *(continued)*			
46		A	7 M 5	33					
		36	4 4 7	5					
45									
						4JH5			
		33	3 3 7	4		Oy(me2ns d(nSPry( ) s yf) t ghl B			
06									
						04H5			
		37	5 5 5	36		Oy(me2ns d(nS (nS yf) t ghl B			
05									
		34	M 5 5	36		56H6			
56									

Wfrrfk feafysGfI3 (r 56H6 essrH

hl c 19Oh . OYNoNcNcCb l 1NcCHoo c . AU7AU73 36\5J . E\l v 9TCuch wL Ch l v 9TCuc hCcLl _4446H736676AH6666 . Nc1N, cRu l 9F, c pNuV u1LW%b NvF, N v Co CEC19 l b C, c l v 9TCuc . OC9 . u b c . F, h_73.356J486 . Nc1N, cRu l 9F, c pNuVc u1LW%b NvF, N v C

HAND AUGER WITH HCP - GFA DATA TEMPLATE.GDT - 9/20/21 13:47 - Y:\PROJECTS_UES PROJECT SETUP\3330.2100209.0000 - ATLANTIC POINT YACH CLUB & MARINA REDEVELOPMENT PROJECT - GEO - CMT - INS\21-1508.00 - ATLANTIC POINT YACHT CLUB

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LOG OF BORING AB-5-2

CLIENT Straticon Construction Services
PROJECT NAME Atlantic Point Yach Club & Marina Redevelopment
PROJECT NUMBER 3330.2100209.0000
PROJECT LOCATION 75 NW Flagler Avenue, Stuart, Florida
DATE STARTED 8/26/21 **COMPLETED** 8/26/21
LATITUDE **LONGITUDE**
DRILLING CONTRACTOR Universal Engineering Sciences
GROUND WATER LEVELS:
DRILLING METHOD Auger Boring
▽ **AT TIME OF DRILLING** 2.50 ft
DRILLER MJ/RV
AT END OF ---
NOTES
ESHGT

DEPTH (ft)	HAND CONE PENETROMETER (HCP) (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)
0			Gray fine sand, trace roots (SP)			
1	80					
2	80		2.0			
			Gray fine sand (SP)			
3	80		▽			
4	80		4.0			
			Orange-light brown fine sand (SP)			
5	80		5.0			

Bottom of borehole at 5.0 feet.

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LOG OF BORING 5-1

hVwR 8 UF 8

CLIENT l ie(ia)s, Hs, oie9)ias, l ceJa)co
PROJECT NAME ViQ, ia) hsa,i 7( )f i HO9n W6 (ea,(1cScJcO9Yg c, i
PROJECT NUMBER GGG2.082202E.2222
PROJECT LOCATION %AN3 FQyOeVJc, 9cPl i9(eiPFOeaS(
DRILLING CONTRACTOR M,alceo(OR, ya,cceay l)ac,)co
HOLE DEPTH 5 ti
HOLE DIAMETER Ga,
DRILLER um/6 1/r U/6 h
DATE STARTED E/85/08
COMPLETED E/85/08
DRILL RIG wcshesnc
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** G22 ti
METHOD l hv
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

CRhvD -tib	l V6 hr R	l V6 hr R NM6 mR1	mr U3 HUMNvl	N l Vr MR	w1 VhDTH r Uw	6 VvR1 TVr CRl H1 ThvTUN	6 UT vM1 R HUNvRNv -& b	FTNRl HUNvRNv -& b	U1 wVNTH HUNvRNv -& b
8		8	8 0 G G	A		ray fi nesd, ta,c o(, SPie( )c of cOde(yg c, io-l hb			
0		0	0 0 0 G	4		▽			
4		G	0 G G G	5		4.2 we(Bta,c o(, S-l hb 5.2			
5									

msiisg st nsecfs O(i 5.2 tcci.

Appendix E - Water Boring Logs

C)s,raD89c)(s)rrae)(his:)irD
607 NW Commodity Cove
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LOG OF BORING B-12-1

l UOc 6 l u 6

CLIENT hG8G8f) Lf)DGaYiG8f) hra,sirD
PROJECT NAME UG8)G8 l fs)G&8idGL9Ymp E8ae)8 yrkr,r9f%Wr)G
PROJECT NUMBER 4445H765575VH5555
PROJECT LOCATION 1J N2 u98(9faU,r)Yr.hGY8aGu9fak8
DRILLING CONTRACTOR UW/ ae9v)iH
HOLE DEPTH 60 PG **HOLE DIAMETER** 4 s)
DRILLER /h
DATE STARTED VT65T76 **COMPLETED** VT65T76
DRILL RIG m8a(r
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5H55 PG
METHOD hl R
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

/ clRA g8	hUEltc	hUEltc NCEocy	otl2 LI CNRh	NFUtCc	OyUl AvL tlO	EURcyvUt / chLyvlRvlN	El vhRCyc LI NRcNRg+B	uvNch LI NRcNRg+B	l yOUNvL LI NRcNRg+B
						▽ 2 8Ga			
						3H5			
J		6	5 5 6 6	6		yfinesGd(a8SP9r D8)k ghl B			
						0H5			
		7	6 7 7 3	3		oafe)P9r D8)k ghl B			
						M5			
		4	6 6 6 6	7		ts(dGmafe)bmafe)P9r D8)k.G8ir Ddr9PR8(Wr)GDghl B			
						65H5			
65		3	3 4 3 0	1		Oa8SP9r D8)k.G8ir Ddr9PR8(Wr)GDghl B			
						67H5			
		J	3 4 3 1	1		Oa8SP9r D8)k ghl B			
6J		0	4 4 3 3	1		60H5			

of GGWfPmfardf9r 8G60H5 PrGl

hlRtl Oh bOuU/ URURcEltURcH0/ R6651676 51:7J b&:\l y1 _cLRh\wCch l y1 _cLRhcRCl \4445H765575VH5555 bURt UNRXL l l vNR&ULA LtCo p EUyvNUyc/ cFctl l EcNRI y1 _cLRbOcl bLERbNh\766J5M45 bURt UNRXL l l vNR&ULAR LtCo p EUyvNUyc

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LOG OF BORING B-12-2

l UOc 6 l u 6

CLIENT hG8Gf) Lf) DGYiGf) hra,sirD
PROJECT NAME UG8)G l fs)G&8idGL9Ymp E8a)8yrkr,r9f%Wr)G
PROJECT NUMBER 4445H765575VH5555
PROJECT LOCATION 1JN2 u8(9aU,r)Yr.hG8aGu9ak8
DRILLING CONTRACTOR UW/ a9v)iH
HOLE DEPTH 76 RG **HOLE DIAMETER** 4 s)
DRILLER /h
DATE STARTED VT65T76 **COMPLETED** VT65T76
DRILL RIG m8a(r
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5H55 RG
METHOD hlR
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

/ clRA g8	hUEltc	hUEltc NCEocy	otl2 LlCNRh	NFUtCc	OyUlAvL tlO	EURcyvUt / chLyvlRvlN	ElvhRCyc LlNRcNRg+B	uVNch LlNRcNRg+B	lyOUNvL LlNRcNRg+B
						▽ 28Ga			
J						VH5			
65		6	5555	2lA		Oa8SR9r D8)k8)kWYinghlB			
		7	5555	2lA		64H5			
		4	5554	2lA		/8an(a8SDa8GSR9r D8)k.G8ir Ddr9PR8(Wr)GDghEB			
6J		3	5767	4		6JH5 ts(dG(a8Sdk8an(a8SR9r D8)kghlB			
		J	5557	2lA					
75		0	6666	7		76H5			

ofGEWfPmfardf9 8G76H5 PrGH

hlRtl Oh bOuU/ URURcEltURch0/ Rb6516176 51:7J b&:\ll yl _cLRhwCchl yl _cLRhcRCl \4445H765575VH5555 bURt UNRXL I I vNR&ULA LtCo p EUyvNUyc/ cFctI I EcNRI yl _cLRbOcl bLERbNh\766J5M45 bURt UNRXL I I vNR&ULAR LtCo p EUyvNUyc

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LOG OF BORING B-12-3

l UOc 6 l u 6

CLIENT hG8Gf) Lf) DGYiGf) hra,sirD
PROJECT NAME UG9)Gl fs)G&8idGL9Ymp E8a)8yrkr,r9f%Wr)G
PROJECT NUMBER 4445H765575VH5555
PROJECT LOCATION 1JN2 u9(9aU,r)Yr.hGY8aGu9ak8
DRILLING CONTRACTOR UW/ a9v)iH
HOLE DEPTH 76 RG
HOLE DIAMETER 4 s)
DRILLER /h
DATE STARTED VT65T76
COMPLETED VT65T76
DRILL RIG m8a(r
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5H55 RG
METHOD hlR
LATITUDE
LONGITUDE
NOTE:
HAMMER TYPE

/ clRA g8	hUEltc	hUEltc NCEocy	otl2 LlCNRh	NFUtCc	OyUlAvL tlO	EURcyvUt / chLyvlRvlN	ElvhRCyc LlNRcNRg B	uWNch LlNRcNRg B	lyOUNvL LlNRcNRg B
						▽ 28Ga			
J									
					VH5				
65		6	5555	2lA		hdr9Pa8(Wr)GDesGdmafe) R9r D8)kghlB			
					66H5				
		7	5566	6		oafe) R9r D8)k8)kDdr9Pa8(Wr)GDghlB			
		4	5666	7					
6J					6JH5				
		3	6666	7		Oa8SR9r D8)k.Ga8ir Ddr9Pa8(Wr)GDghlB			
					61H5				
		J	5566	6		Oa8SR9r D8)k8)kDdr9Pa8(Wr)GDghlB			
75		0	6666	7					
					76H5				

ofGEWfPmfardf9r8G76H5PrrGH

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LOG OF BORING B-12-4

l UOc 6 l u 6

CLIENT hG8Gf) Lf) DGYiGf) hra,sirD
PROJECT NAME UG8)G l fs)G&8idGL9Ymp E8a)8yrkr,r9f%Wr)G
PROJECT NUMBER 4445H765575VH5555
PROJECT LOCATION 1J N2 u8(9aU,r)Yr.hG8aGu9ak8
DRILLING CONTRACTOR UW/a89v)iH
HOLE DEPTH 60 FG **HOLE DIAMETER** 4 s)
DRILLER /h
DATE STARTED VT66T76 **COMPLETED** VT66T76
DRILL RIG m8a(r
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5H55 FG
METHOD hl R
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

/ clRA g8	hUEltc	hUEltc NCEocy	otl2 LlCNRh	NFUtCc	OyUlAvL tlO	EURcyvUt / chLyvlRvlN	ElvhRCyc LlNRcNRg+B	uvNch LlNRcNRg+B	lyOUNvL LlNRcNRg+B
						▽ 2 8Ga			
						3H5			
J		6	5566	6		Oa8SR9r D8)k.G8ir Ddr9P28(Wr)GDghlB			
						0H5			
		7	6733	0		ts(dGmafe)R9r D8)kghlB			
		4	5656	6					
65									
		3	5566	6					
		J	5555	2lA					
						63H5			
						ts(dG(a8Sb(a8SR9r D8)kghlB			
6J		0	5566	6					
						60H5			

ofGGWfPmfardf9 8G60H5 PrGH

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LOG OF BORING B-50-1

BVf E 6 WF 7

CLIENT I nyGrePt s At sdry, Pred s I ayuePad
PROJECT NAME VrDDsreP Bt esr YGP) r AD M& U Gyes Gc a(auaD pg asr
PROJECT NUMBER 4445.765575/ .5555
PROJECT LOCATION 19 C8 FDDkDay Vuas, aSl r, GyrSFD ye(G
DRILLING CONTRACTOR Vg HyeDDTsP.
HOLE DEPTH 05 m **HOLE DIAMETER** 4 es
DRILLER Hl
DATE STARTED / R2R76 **COMPLETED** / R2R76
DRILL RIG MGyka
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5.55 m
METHOD I BJ
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

HEBJO fmo	I VUBvE	I VUBvE CI U LEc	LvW8 AWI CJI	C NVvI E	f c VBOTA vWf	UVJEc TVv HEl Ac TBJ TWC	UWT JI c E AWCJECJ H‰o	FTCEl AWCJECJ H‰o	Wc f VCTA AWCJECJ H‰o
						▽ 8 Gray			
9									
65						65.5			
		6	5 5 5 6	8 WO		f yGl mesa dGs(SnyGPa d) aDDnyGkg asrd Hl Bo			
		7	6 6 6 7	7		63.5			
69		4	3 4 7 7	9		f yGl mesa dGs(Hl Bo			
		3	7 6 6 7	7		62.5			
		9	6 6 3 3	9		f yGl mesa dGs(SnyGPa d) aDDGs(yt PmHl Bo			
75									
						74.9			
		0	4 0 1	64		f yGl mesa dGs(b er) d) aDDGs(yt PmHl Bo			
79									
						72.9			
		1	3 1 2	69		f yGl mesa dGs(SnyGPa d) aDDHl Bo			
45									

(Continued Next Page)

I BJ vWf I - f FV HVJV JEU BvVJE.f HJ - 65RR76 51:96 - Y:\Bc W_EAJ I wl El Bc W_EAJ I EJI B\4445.765575/ .5555 - VJvVCJTA BWTCJ YVAO Avl L & UVc TCV c EHENEvWBUECJ Bc W_EAJ - f EW - AUJ - TCl \76-6952.55 - VJvVCJTA BWTCJ YVAQJ Avl L & UVc TCV c E

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LOG OF BORING B-50-1

BVf E 7 WF 7

CLIENT I nyGrePt s At sdry, Pred s I ayuePad

PROJECT NAME VrDDsreP Bt esr YGP) r AD M& U Gyes Gc a(auaD pg asr

PROJECT NUMBER 4445.765575/ .5555

PROJECT LOCATION 19 C8 FDDkDayVuas, aSl r, GyrSFDye(G

HEBJO hmo	I VUBvE	I VUBvE Cl ULEc	LvW8 AW CJI	C NVvI E	f c VBOTA vWf	UVJEc TVv HEl Ac TBJ TWC	UWT JI c E AWCJECJ H%o	FTCEI AWCJECJ H%o	Wc f VCTA AWCJECJ H%o
						f yGl mesa dGs(SryGPa d) aDDH Bo *(continued)*			
	X	2	61 62 0	73		44.9 f yGl mesa dGs(SDarDa yt PmH Bo			
49									
	X	/	3 7 4	9					
35									
	X	65	4 4 4	0					
39									
	X	66	1 3 4	1					
95									
	X	67	9 64 77	49		94.9 f yGl mesa dGs(b e) yt PmH Bo			
99									
	X	64	4 9 0	66		92.9 f yGl mesa dGs(Gs(yt PmH Bo			
05						05.5			

Ltrrtg tnMtya) tDa Gr 05.5 naar.

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LOG OF BORING B-50-2

BVf E 6 WF 7

CLIENT I nyGrePt s At sdry, Pre s I ayuePad
PROJECT NAME VrDsreP Bt sr YGP) r AD,M& UGyesGc a(auaDpg asr
PROJECT NUMBER 4445.765575/ .5555
PROJECT LOCATION 19 C8 FDkDayVuas, aSl r, GyrSFDye(G
DRILLING CONTRACTOR Vg HyeDTsP.
HOLE DEPTH 05 m **HOLE DIAMETER** 4 es
DRILLER Hl
DATE STARTED / R6R76 **COMPLETED** / R6R76
DRILL RIG MGyka
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5.55 m
METHOD I BJ
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

HEBJO fmo	I VUBvE	I VUBvE CI ULEc	LvW8 AWl CJI	C NVvI E	f c VBOTA vWf	UVJEc TVv HEl Ac TBJTWC	UWT JI c E AWCJECJ H‰o	FTCEI AWCJECJ H‰o	Wc f VCTA AWCJECJ H‰o
						▽ 8 Gray			
9									
						65.5			
65		6	5 5 5 5 5	8 WO		f yGl mesa dGs(SryGPa d) aDDnyGkg asrd Hl Bo			
						67.5			
		7	5 5 5 5 5	8 WO		f yGl mesa dGs(Hl Bo			
						63.5			
69		4	5 5 5 5 5	8 WO		HGymkyGl mesa dGs(SryGPa d) aDDnyGkg asrd Hl Bo			
						60.5			
		3	5 5 5 5 5	8 WO		f yGl mesa dGs(SryGPa d) aDDnyGkg asrd Hl Bo			
		9	5 5 5 5 5	8 WO					
75									
						74.9			
		0	5 5 5	8 WO		HGymkyGl mesa dGs(b e) deBSryGPa d) aDDnyGkg asrd Hl B-l Uo			
79									
						72.9			
		1	6 6 6	7		HGymkyGl mesa dGs(b e) deBPHl B-l Uo			
45									

(Continued Next Page)

Universal Engineering Sciences
607 NW Commodity Cove
Port Saint Lucie, Florida 34986
(772) 924-3575

LOG OF BORING B-50-2

BVf E 7 WF 7

CLIENT I nyGrePt s At sdry, Pre s I ayuePad

PROJECT NAME VrDDsreP Bt esr YGP) r AD,M& UGyesGc a(auaDpg asr

PROJECT NUMBER 4445.765575/ .5555

PROJECT LOCATION 19 C8 FDDkDayVuas, aSl r, GyrSFDye(G

HEBJO hmo	I VUBvE	I VUBvE Cl ULEc	LvW8 AW CJI	C NVvI E	f c VBOTA vWf	UVJEc TVv HEl Ac TBJTWC	UWTJI cE AWCJECJ H%o	FTCEI AWCJECJ H%o	Wc f VCTA AWCJECJ H%o
						HGymkyGl nesa dGs(b e) deDH B-l Uo *(continued)*			
						44.9			
	X	2	7 4 3	1		f yGl nesa dGs(SnyGPa d) aDDnyGkg asrd H Bo			
49									
						42.9			
	X	/	7 6 6	7		Lytbs nesa dGs(H Bo			
35									
						34.9			
	X	65	6 7 9	1		Lytbs nesa dGs(SnyGPa b t t(H Bo			
39									
						32.9			
	X	66	73 75 64	44		f yGl nesa dGs(SnyGPa b t t(H Bo			
95									
						94.9			
	X	67	66 65 64	74		vek) r kyGl nesa dGs(b e) deDGs(yt PmH B-l Uo			
99									
						92.9			
	X	64	/ 67 69	71		vek) r kyGl nesa dGs(b e) deDH B-l Uo			
05						05.5			

Ltrrtg tnMtya) tDa Gr 05.5 naar.

I BJ vWf I - f FV HVJV JEU BvVJE.f HJ - 65RR76 51:96 - Y:\Bc W_EAJI wl EI Bc W_EAJI EJI B\4445.765575/ .5555 - VJvVCJTA BWTCJ YVAO Avl L & UVc TCV c EHENEvWBUECJ Bc W_EAJ - f EW- AUJ - TCl \76-6952.55 - VJvVCJTA BWTCJ YVAQJ Avl L & UVc TCV c E

Universal Engineering Sciences
607 NW Commodity Cove
Port Saint Lucie, Florida 34986
(772) 924-3575

LOG OF BORING B-50-3

BVf E 6 WF 7

CLIENT I nyGrePt s At sdry, Pred s I ayuePad
PROJECT NAME VrDDsreP Bt esr YGP) r AD,M& UGyesGc a(auaDDpg asr
PROJECT NUMBER 4445.765575/ .5555
PROJECT LOCATION 19 C8 FDDkDayVuas, aSl r, GyrSFDye(G
DRILLING CONTRACTOR Vg HyeDDTsP.
HOLE DEPTH 05 m **HOLE DIAMETER** 4 es
DRILLER Hl
DATE STARTED / R6R76 **COMPLETED** / R6R76
DRILL RIG MGyka
GROUND WATER LEVEL: ▽ **AT TIME OF DRILLING** 5.55 m
METHOD I BJ
LATITUDE **LONGITUDE**
NOTE:
HAMMER TYPE

HEBJO hmo	I VUBvE	I VUBvE CI ULEc	LvW8 AWl CJI	C NVvI E	f c VBOTA vWf	UVJEc TVv HEl Ac TBJTWC	UWT JI c E AWCJECJ H‰o	FTCEl AWCJECJ H‰o	Wc f VCTA AWCJECJ H‰o
						▽ 8 Gray			
9									
						65.5			
65		6	5 5 5 5	8 WO		f yGl mesa dGs(SryGPa d) aDDnyGkg asrd Hl Bo			
						67.5			
		7	5 5 6 6	6		f yGl mesa dGs(Hl Bo			
69		4	6 6 6 6	7					
		3	5 6 6 6	7		62.5			
		9	5 5 5 5	8 WO		HGymkyGl mesa dGs(b e) deDHl B-l Uo			
75									
						74.9			
		0	6 6 6	7		HGymkyGl mesa dGs(Gs(d) aDDnyGkg asrd Hl Bo			
79									
						72.9			
		1	5 6 6	7		f yGl mesa dGs(Hl Bo			
45									

(Continued Next Page)

I BJ vWf I - f FV HVJV JEU BvVJE.f HJ - 65RR76 51:96 - Y:\Bc W_EAJ I wl El Bc W_EAJ I EJI B\4445.765575/ .5555 - VJvVCJTA BWTCJ YVAO Avl L & UVc TCV c EHENEvWBUECJ Bc W_EAJ - f EW- AUJ - TCl \76-6952.55 - VJvVCJTA BWTCJ YVAQJ Avl L & UVc TCV c E

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607 NW Commodity Cove
Port Saint Lucie, Florida 34986
(772) 924-3575

LOG OF BORING B-50-3

BVf E 7 WF 7

CLIENT I nyGrePt s At sdry, Pret s I ayuePad **PROJECT NAME** VrDDsreP Bt esr YGP) r AD,M& UGyesGc a(auaDDpg asr

PROJECT NUMBER 4445.765575/ .5555 **PROJECT LOCATION** 19 C8 FDDkDayVuas, aSl r, GyrSFDye(G

HEBJO hmo	I VUBvE	I VUBvE Cl ULEc	LvW8 AW CJI	C NVvI E	f c VBOTA vWf	UVJEc TVv HEl Ac TBJ TWC	UWTJI cE AWCJECJ H%o	FTCEI AWCJECJ H%o	Wc f VCTA AWCJECJ H%o
						f yGl mesa dGs(Hl Bo *(continued)*			
	X	2	5 6 7	4		44.9 f yGl mesa dGs(SnyGPa d) aDDnyGkg asrd Hl Bo			
49									
	X	/	6 6 4	3		42.9 Lytbs mesa dGs(SnyGPa yt t rd Hl Bo			
35									
	X	65	3 64 74	40		34.9 f yGl -Mytbs mesa dGs(SnyGPa yt PmHl Bo			
39									
	X	66	4 4 9	2		32.9 vek) r kyGl mesa dGs(b e) yt PmHl Bo			
95									
	X	67	65 77 73	30		94.9 ct Pmb e) Dek) r kyGl mesa dGs(Hl Bo			
99									
	X	64	67 69 62	44		05.5			
05									

Lt rrt g t nM(ya) t Da Gr 05.5 naar.

Appendix F - Hydraulic Conductivity Results

UNIVERSAL ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

EXFILTRATION TEST REPORT

SOUTH FLORIDA WATER MANAGEMENT DISTRICT - USUAL OPEN HOLE TEST

Client: Straticon Construction Services

Project: Atlantic Point Yacht Club & Marina
75 NW Flagler Avenue
Stuart, Florida

Project No: 3330.2100209.0000

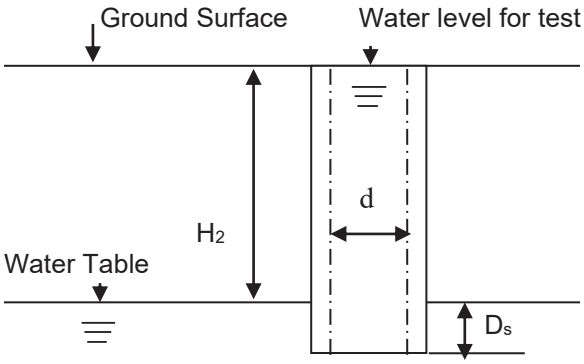
Test Date: 9/3/21

Technician: PS

SOIL PROFILE

Test Location:	Depth (feet)	Soil Description	HCP
EX-1	0.0 – 3.0	Brown fine sand, trace roots (SP)	80+
	3.0 – 5.0	Grey fine sand (SP)	80+
	5.0 – 6.0	Dark brown Peat (PT)	80+
			60
			30
			20
	Depth to Water Table from Ground Surface (feet)		5’

CALCULATION OF HYDRAULIC CONDUCTIVITY



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2D_S + H_2d)}$$

K	Hydraulic Conductivity (cfs/ ft^2 – ft head)	**1.19×10^{-04}**
Q	Stabilized Flow Rate (cubic ft per second)	**2.23×10^{-03}**
d	Diameter of Test Hole (feet)	**0.33**
H_2	Depth to Water Table (feet)	**5.0**
D_S	Saturated Hole Depth (feet)	**1.0**
Notes:		

UNIVERSAL ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

EXFILTRATION TEST REPORT

SOUTH FLORIDA WATER MANAGEMENT DISTRICT - USUAL OPEN HOLE TEST

Client: Straticon Construction Services

Project: Atlantic Point Yacht Club & Marina
75 NW Flagler Avenue
Stuart, Florida

Project No: 3330.2100209.0000

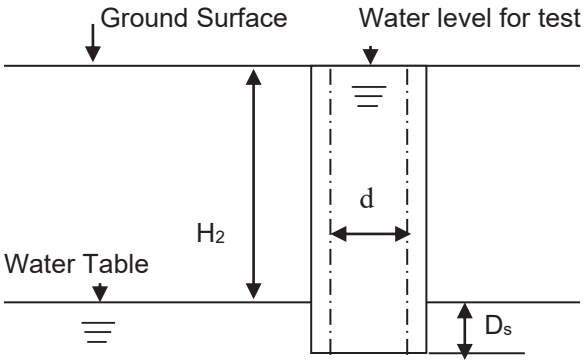
Test Date: 9/3/21

Technician: PS

SOIL PROFILE

Test Location:	Depth (feet)	Soil Description	HCP
EX-2	0.0 – 1.0	Grey fine sand (SP)	80+
	1.0 – 5.0	Light grey fine sand (SP)	80+
	5.0 – 6.0	Grey fine sand, trace shell (SP)	80+
			80+
			80+
			80+
	Depth to Water Table from Ground Surface (feet)		6’

CALCULATION OF HYDRAULIC CONDUCTIVITY



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2D_S + H_2d)}$$

K	Hydraulic Conductivity (cfs/ ft^2 – ft head)	**1.84×10^{-04}**
Q	Stabilized Flow Rate (cubic ft per second)	**3.57×10^{-03}**
d	Diameter of Test Hole (feet)	**0.33**
H_2	Depth to Water Table (feet)	**6.0**
D_S	Saturated Hole Depth (feet)	**0.0**
Notes:		

UNIVERSAL ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

EXFILTRATION TEST REPORT

SOUTH FLORIDA WATER MANAGEMENT DISTRICT - USUAL OPEN HOLE TEST

Client: Straticon Construction Services

Project: Atlantic Point Yacht Club & Marina
75 NW Flagler Avenue
Stuart, Florida

Project No: 3330.2100209.0000

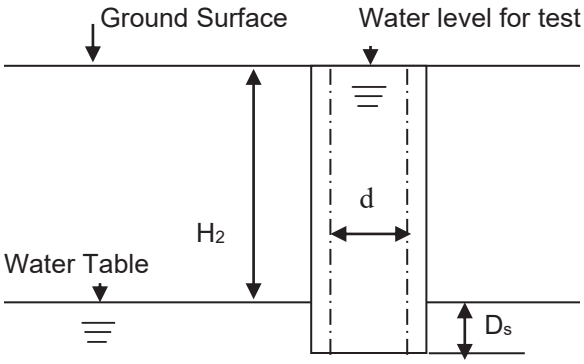
Test Date: 9/3/21

Technician: PS

SOIL PROFILE

Test Location:	Depth (feet)	Soil Description	HCP
EX-3	0.0 – 1.0	Grey fine sand (SP)	80+
	1.0 – 5.0	Light grey fine sand (SP)	80+
	5.0 – 6.0	Dark grey fine sand, trace root (SP)	80+
			60
			50
			10
	Depth to Water Table from Ground Surface (feet)		5’

CALCULATION OF HYDRAULIC CONDUCTIVITY



$$K = \frac{4Q}{\pi d(2H_2^2 + 4H_2D_S + H_2d)}$$

K	Hydraulic Conductivity (cfs/ ft^2 – ft head)	**5.46×10^{-04}**
Q	Stabilized Flow Rate (cubic ft per second)	**1.02×10^{-02}**
d	Diameter of Test Hole (feet)	**0.33**
H_2	Depth to Water Table (feet)	**5.0**
D_S	Saturated Hole Depth (feet)	**1.0**
Notes:		

Appendix G - Discussion of Soil Groups

DISCUSSION OF SOIL GROUPS

COARSE GRAINED SOILS

General. A soil is classified as coarse-grained if more than 50 percent of a representative sample of the material is retained on the No. 200 sieve.

GW and SW Groups. These groups comprise well-graded gravelly and sandy soils containing little or no plastic fines (less than 5 percent passing the No. 200 sieve). The low fines content does not noticeably change the shear strength characteristics of these soils and does not interfere with their free-draining characteristics.

GP and SP Groups. Poorly graded gravels and sands containing little or no plastic fines (less than 5 percent passing the No. 200 sieve) are in the GP and SP groups. The materials can be called uniform gravels, uniform sands, or non-uniform mixtures of very coarse materials and very fine sand, with intermediate sizes lacking (sometimes called skip-graded, gap-graded, or step-graded). This last group often results from borrow pit excavation in which gravel and sand layers are mixed.

GM and SM Groups. In general, the GM and SM groups comprise gravels or sands with fines (more than 12 percent passing the No. 200 sieve) having little or no plasticity. The plasticity index and liquid limit of soils in these groups plot below the “A” line on the plasticity chart. The gradation of the material is not considered significant and both well and poorly graded materials are included.

GC and SC Groups. In general, the GC and SC groups comprise gravelly or sandy soils containing fines (more than 12 percent passing the No, 200 sieve) having plasticity characteristics. The plasticity index and liquid limit of soils in these groups plot above the “A” line on the plasticity chart.

FINE GRAINED SOILS

General. A soil is classified as fine-grained if more than 50 percent of a representative sample of the material passes the No. 200 sieve.

ML and MH Groups. These groups comprise inorganic silts (ML) and elastic silts (MH) having either low (L) or high (H) liquid limits, respectively. ML soils have a liquid limit of less than 50 while MH soils have a liquid limit of 50 and greater. Silts and elastic silts can also contain varying amounts of sand and gravel. Also included in this group are loess sediments and rock flours.

CL and CH Groups. These groups comprise low plasticity (lean) clays (CL) and medium to high plasticity (fat) clays (CH) having either low (L) or high (H) liquid limits, respectively. CL soils have a liquid limit of less than 50 while CH soils have a liquid limit of 50 and greater. The low plasticity clays can also be sandy clays or silty clays. The moderate to high plasticity clays can also be sandy clays and include some volcanic clays.

OL and OH Groups. These groups comprise organic silts and clays. The soils are characterized by the presence of organic odor and/or dark color. The OL and OH soils are differentiated by determining and comparing their liquid limit values before and after oven drying representative soil samples.

HIGHLY ORGANIC SOILS

The highly organic soils are usually very soft and compressible and have undesirable construction characteristics. Particles of leaves, grasses, branches, or other fibrous vegetative matter are common components of these soils. They are not subdivided and are classified into one group with the symbol PT. Peat humus and swamp soils with a highly organic texture are typical soils of the group.

MARTIN COUNTY
BOARD OF COUNTY COMMISSIONERS
2401 S.E. MONTEREY ROAD • STUART, FL 34996

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March 31, 2022

Middle Island Management & Development, LLC
75 NW Flagler Ave.
Stuart, FL 34994

RE: Atlantic Point Yacht Club & Marina – Stuart, FL

To Whom it may concern:

Please be advised that the Martin County Growth Management Department has conducted a cursory review of this project which proposes marine and docking facilities within waters of Martin County. The project is subject to the requirements found in the County's Manatee Protection Plan and Boat Facilities Siting Plan.

The project is located at 75 NW Flagler Avenue in Stuart, FL which is shown to be within a preferred location under the Boat Facilities Siting Plan. New boat facilities or the expansion and redevelopment of marine industries within preferred locations are encouraged and supported under the BFSP as outlined under Policy 3 of the plan:

> POLICIES FOR SITING BOAT FACILITIES
>
> Policy 3. Preferred locations for new boat facilities in Martin County are defined as sites that are located in the Manatee Pocket and Downtown City of Stuart on the north and south side of Roosevelt Bridge and encompassing sites east and west of US 1, as identified and depicted in Exhibits 8 and 10. The BFSP supports the expansion and redevelopment of marine industries in these defined areas. The S & S Investments Parcel 2 or Potential Site 10, Potential Site 7, Potential Site 8, and American Custom Yacht are designated also as a preferred areas (Exhibit 13) and the county proposes that the undeveloped areas be used for waterfront

manufacturing and boat repair activities. The number of boats at each facility will be limited by site plan constraints, and local, state, and federal requirements to avoid and minimize impacts to natural resources.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Paul Schilling
Growth Management Director

PS:SM:cl

Cc: Don Cuozzo/Cuozzo Planning Solutions LLC
Kevin Freeman/Development Director City of Stuart