PHIPPS OCEAN PARK

May 27, 2021

100% Masterplan Presentation

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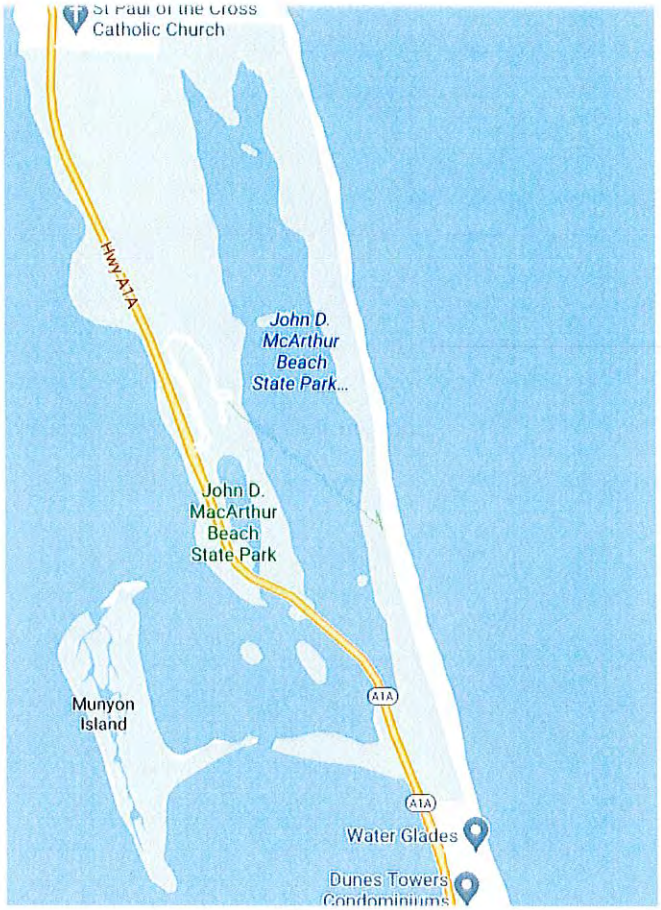
Raymond L Jungles 2021.05.28 12:17:41 -04'00'

jungles

Leon Levy Native Plant Preserve
13.6 acres

Phipps Ocean Park
18 acres

Naples Botanical Garden
170 acres



John D. MacArthur Beach State Park
438 acres

QUESTIONNAIRE FINDINGS - PART 1 - IDENTIFYING THE USER

The following report is a summary of the results and only relevant questions and answers are shown. Complete results are available for review.

Q.1 Where do you live?

65%
Lives South of Sloan's Curve

27%
Lives North of Sloan's Curve

Q.2 How long have you lived in the Town of Palm Beach?

28.1%
Has lived in Palm Beach for more than 20 years

23%
Has been living in Palm Beach for only 2-5 years

Q.3 Age Group

68%
Belong to the 60-79 Age Group

29%
Belong to the 40-59 Age Group. This group has mostly been in Palm Beach for more than 10 years and are year round residents.

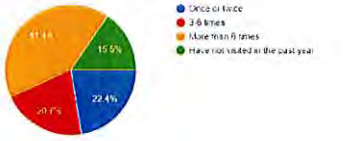
Q.4 Permanent resident or seasonal?

55%
Permanent resident.

44%
Seasonal resident.

*Note these results were normalized to belong into permanent or seasonal

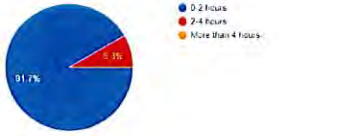
Q.6 How often do you visit?



41.4%
Has visited the park more than 6 times in the past 12 months.
This group is split 50/50 between permanent and seasonal residents.

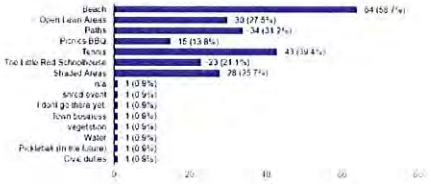
20.7%
Has visited the park between 3 - 6 times in the past 12 months.

Q.9 How long is your visit?



91.7%
Visit for up to 2 hours.

Q.11 What draws you to Phipps Ocean Park?



58.7% Beach
39.4% Tennis
31.2% Paths
13.8% Picnic/BBQ

Q.12 What gets in the way of using the Phipps Ocean Park the way you want to?

30.9%
Thinks the park needs more program, or aesthetic improvements.

16%
Thinks that the park needs **no** improvement

10.7%
Thinks it needs better maintenance.

4.7%
Think crowds and non-residents.

Q.13 What is the "heart" of Phipps Ocean Park?

33.8% Beach
16.5% Ridge/Dune (view to the ocean)
27% Tennis Courts
12.2% Little Red Schoolhouse

Q.15 What do you most like about the existing Phipps Ocean Park?

32.5%
Related to the park's natural or spatial features

19.1%
Beach

14.6%
Tennis Courts

14.6%
Park's proximity

Q.16 What do you least like about the existing Phipps Ocean Park?

29%
Relates to lack of design or amenities

16.3%
Parking lots (size, design, admin)

15.1%
Park maintenance

8.1%
Related to park visitors/crowds and related activities

QUESTIONNAIRE FINDINGS - PART 2 - EXISTING CONDITION

The following report is a summary of the results and only relevant questions and answers are shown. Complete results are available for review.

Q.1 What single word best describes the existing Phipps Ocean Park?

68.1%
Comments are positive (i.e. Beautiful, nice, convenient, iconic)

31.8%
Comments are negative (i.e. Underdeveloped, run down, tired, underutilized)

Q.2 What are Phipps Ocean Park's main features?

Little Red Schoolhouse, picnic areas, open lawns, beach, BBQ, chickee huts, open space, nature. (Descending order)

Q.3 What is Phipps Ocean Park currently most lacking?

41.8%
Related to planting and spatial design (nature areas, paths and trails, shade)

41.8%
Related to program and activities (Exercise, Pickleball, dog areas, playground)

Q.4 What is Phipps Ocean Park greatest untapped opportunity?

48%
Related to landscape space, land and/or location

22.6%
Think its related to program and activities

Q.5a How do you rate the condition of buildings and infrastructure?

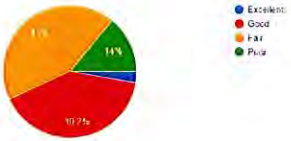
52.4%
Fair

25.7%
Good

Q.5b How do you rate the condition of natural areas?

52.4%
Fair

25.7%
Good



Q.6 Additional comments

"Easier access for bicycle"

"I hope the "upgrade" will keep the low-key friendly feel of this park, from access to beach & the tennis courts, which extends to the same family-friendly feel of the golf course."

"More waste containers"

"I love going there. I wish the beach was wider and there were more flowers or specimen trees."

"It is important to have native plant material and there could be great infusions of color and lush landscaping. The overall area feels overgrown and mismanaged. There should be consideration to leverage shady areas for appropriate uses, i.e., playgrounds, performances, lectures, etc."

QUESTIONNAIRE FINDINGS - PART 3

The following report is a summary of the results and only relevant questions and answers are shown. Complete results are available for review.

Q.1 What is more important for you?

Physical activity, native plants and nature trails, ponds and quiet reflection.
(Descending order)

Q.2 What do you want to see most improved at Phipps Ocean Park?

64.1%
Landscape design improvements

17.2%
Program elements (Amenities, pickleball, restrooms)

13.6%
Administration and maintenance (parking rules, overall state of the park)

Q.3 What amenities would you most like to see at Phipps Ocean Park?

31.8%
Landscape and nature features

27.7%
More sports infrastructure (Pickleball, exercise stations, paths)

16.6%
Better bathrooms

15.2%
Playgrounds

15.2%
Picnic areas, pavilions, chickee huts

15.2%
Playgrounds

10.6%
Restaurant or food shop

4.5%
Dog park

Q.3 What new features would you like to see in Phipps Ocean Park??

50.6%
Nature trails

28.7%
Water fountains

24.1%
Improved landscape design and features

24.1%
Dog park

16.1%
Sports infrastructure

13.8%
Art

10.3%
Program elements (Snack bar, sanitizing stations, coffee shop)

Q.6 What trail initiatives should be a priority?

74.5%
Nature trails

10.4%
Paved trails

7.5%
Bike trails

Q.7 What type of exercise opportunities would you like to see in Phipps Ocean Park?

39.1%
Trails (walking and biking)

15.9%
Space for classes and activities (yoga, fitness)

13%
Pickleball courts

11.6%
None

10.1%
Exercise machines/circuit

8.7%
Improve tennis courts

Q.11 What are your biggest concerns about this masterplan?

Overdevelopment, Screening the parking lot, fire station and tennis. Identity, Parking, Aesthetics.

Q.12 Additional comments

Native plants needed, desire for a botanical garden, trash pickup on the beach.

MAXIMIZE PARK USABILITY

- Increase visitation by all Town of Palm Beach residents.
- Increase appeal for all age groups to visit park.
- Increase awareness of park for new residents.
- Encourage longer visits to park.
- Encourage all residents to make park visitation more integral on social and private lives.
- Improve safety.
- Increase the length of comfortable walking paths & maximize experiences.
- Upgrade all infrastructure in park over time.
- Improve the condition of the park's natural areas.
- Provide for solitary as well as social visitation.
- Entice those residents who don't want to use the park to visit more often.
- Garden paths for people and children to enjoy.
- Increase opportunities for physical activities, walking, biking, exercise.
- More opportunities for picnicking and small gatherings.
- Plan for versatility and flexibility.
- Improve seating opportunities.
- Increase usable lawn areas.
- Increase shade.

IMPROVE PARK ACCESSIBILITY

- Increase visibility, popularity of park.
- Increase, encourage bicycle access.
- Improve walking, strolling opportunities.
- Make paths compatible for baby strollers & wheel chairs.
- Promote biking.
- Improve safety. Identify the measures that can be taken.
- Provide overflow parking for peak days & programmed events.
- Integrate comfortable, safe, walking/nature trails.
- Link west side of park with east side with safe cross walks (slow speed limit) .
- Add pedestrian crossing signals.
- Improve efficiency of parking & minimize paving.
- Improve parking experience.
- Improve wayfinding in a subtle, elegant, timeless manner.
- Create native trails.

RESTORE & PRESERVE NATURAL ENVIRONMENT

- Restore pre-human plant communities and ecosystems.
- Limit future development of park to preserve open space.
- Limit commercial activities in park to those with majority community support.
- Simplify & improve maintenance.
- Simplify & clarify maintenance procedures.
- Reduce maintenance where possible.
- Encourage volunteer participation for maintenance.
- Incorporate low impact paths (elevated walkways).
- Remove all invasive exotic species.
- Dune restoration using native species
- Bring back pollinators.
- Become a nature preserve.
- Propagation areas for native plants
- Land remediation
- Recreate native habitats.

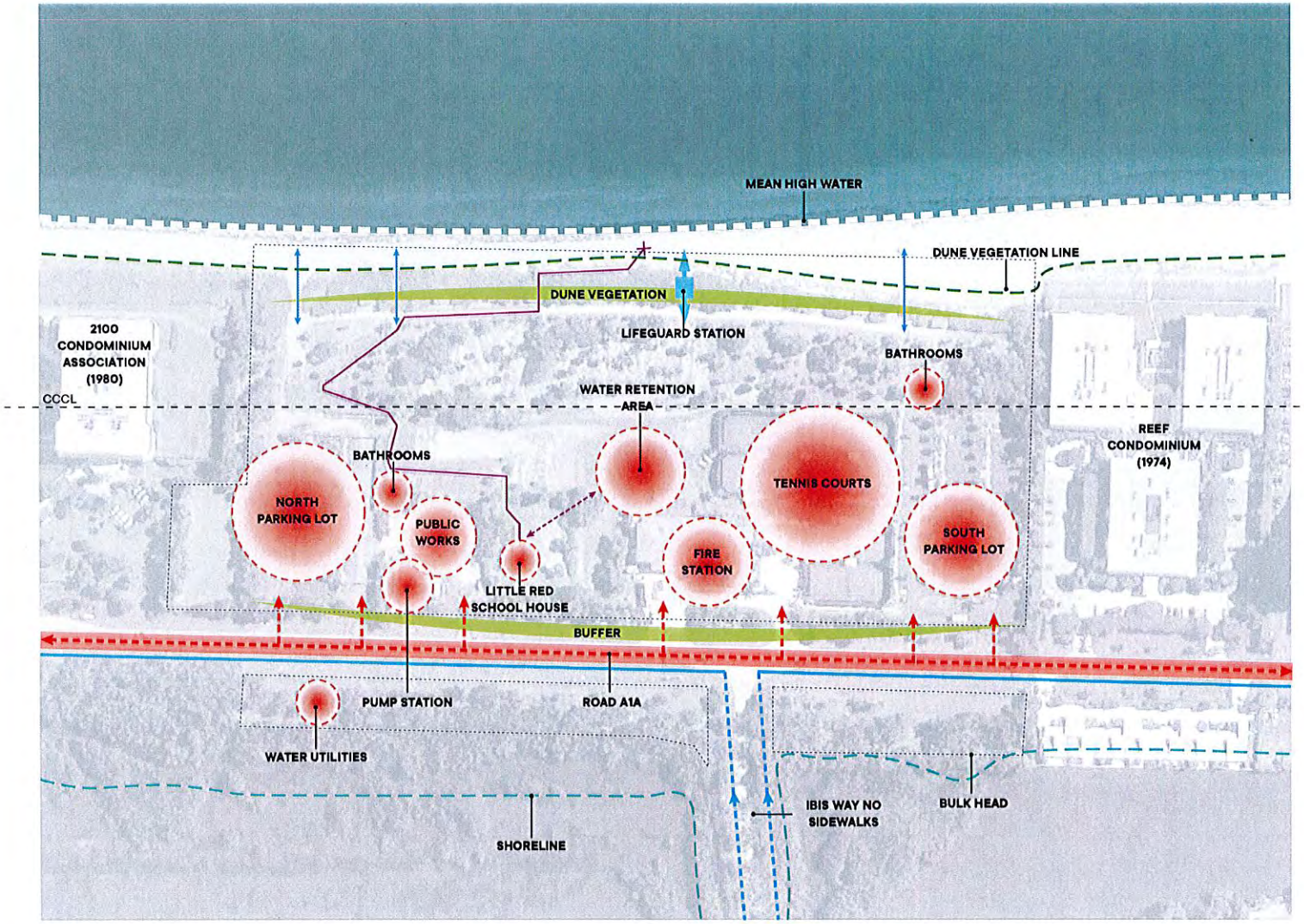
INCREASE EDUCATIONAL OPPORTUNITIES

- Explain about ecosystems, plants & sustainability.
- Create native trails.
- Design flexible space for educational activities.
- Educational gardens and paths.
- Integrate non-traditional (natural feeling) play area for kids.
- Integrate outdoor classroom.
- Engage kids of all ages.

BEAUTIFY & ESTABLISH RESILIENCY

- Provide the right balance of park development & beautiful natural areas.
- Remove or relocate picnic tables & stands.
- Improve visual access to Little Red Schoolhouse.
- Blur line between park and natural environment
- Pervious paving on parking lots and paths
- Rain gardens that clean runoff from pervious paving.
- Storm management for parking lot: rain gardens.
- Implement freshwater wetlands to energize the site and maximize biodiversity.
- Create a natural feeling water element.
- Screen negative off-site views.
- Visually screen firehouse.
- Visually screen tennis court with native hedge material.
- Create better visual access to ocean.

PEDESTRIAN ACCESSIBILITY DIAGRAM

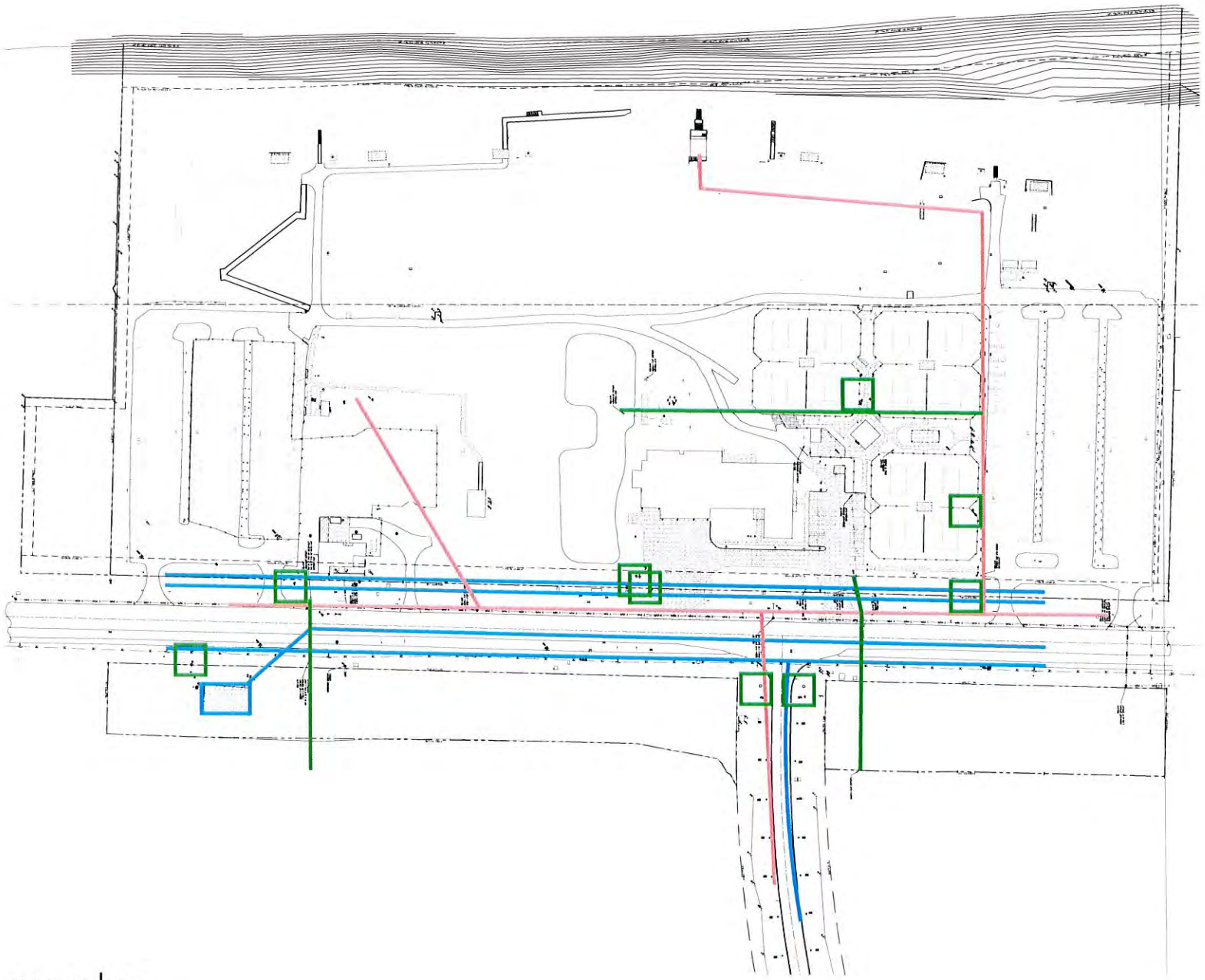


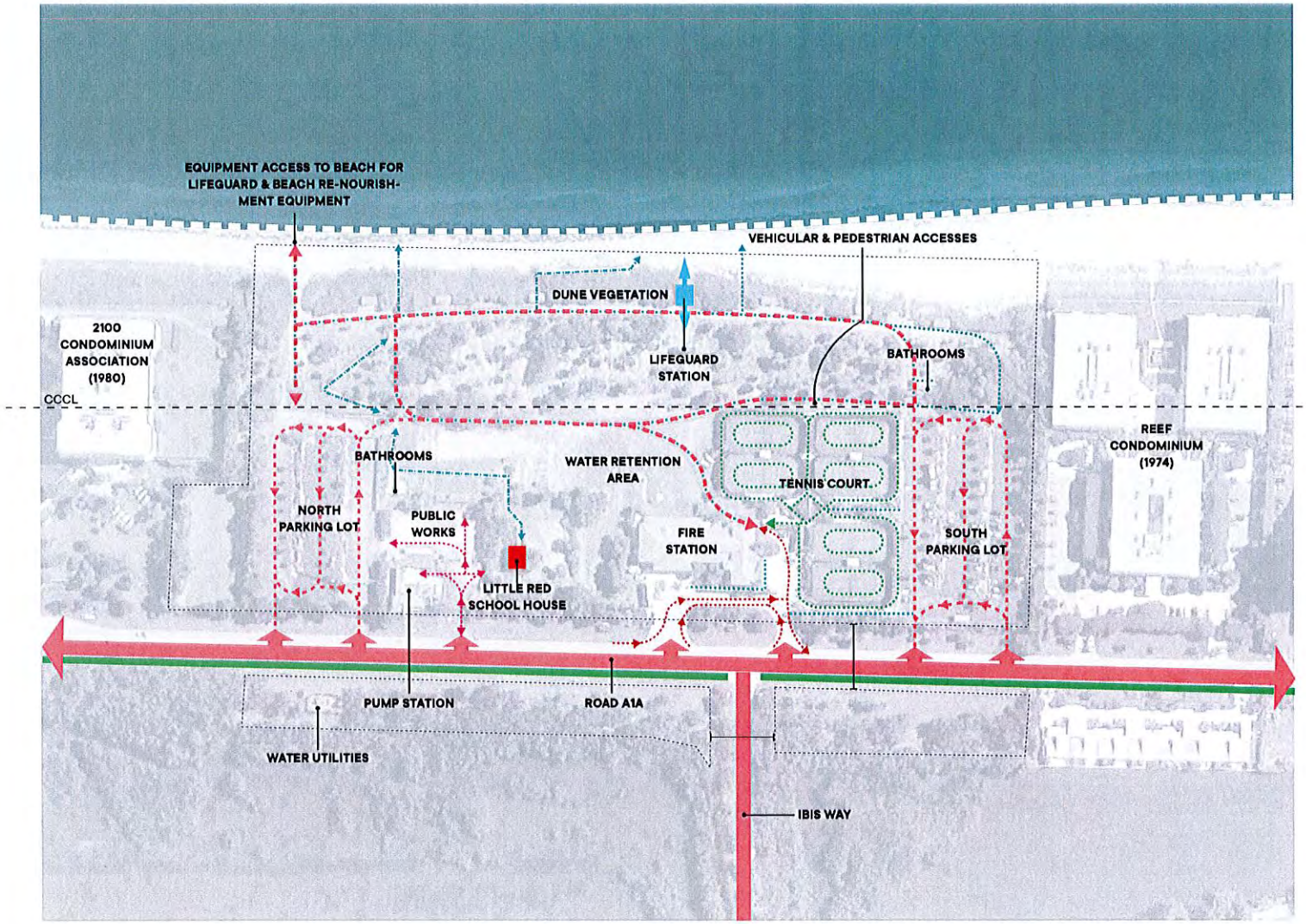
Legend

- Existing Beach Pedestrian Access
- Existing Vehicular Access
- Existing ADA Access/Route
- Lack of Pedestrian Access
- Property Line
- Major Built Features
- Green Buffers

Notes

- 7 driveways, no sidewalks on Park side
- No crosswalks along A1A
- No visibility of access points from A1A
- Visual and physical barriers for access


Legend
Water Distribution System
Stormwater System
Sanitary Sewer System



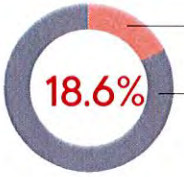
Legend

- Property Line
- Road A1A
- A1A Bike & Pedestrian Path
- Vehicular Circulation
- Fire Station Circulation
- Public Works Circulation
- Pedestrian Circulation
- Wooden Boardwalk & ADA Accessibility
- Tennis Court Pedestrian Circulation
- Life Guard Access

Notes

- 7 driveways
- 279 parking spots
- -164,526 SF of car infrastructure, 18.6% of total site area

Vehicular Infrastructure S.F. Percentage



North Parking

114

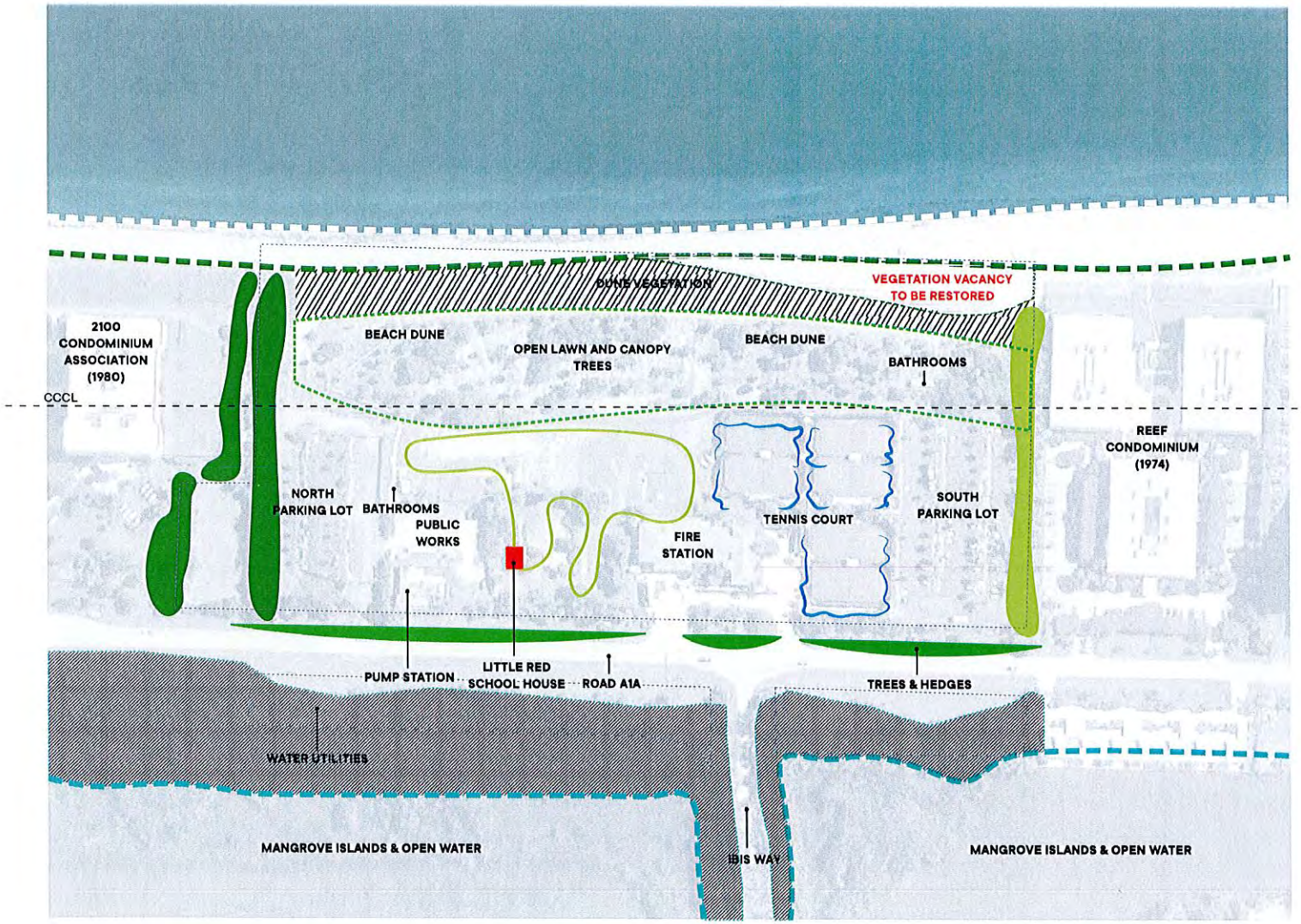
South Parking

147

Total Parking

261

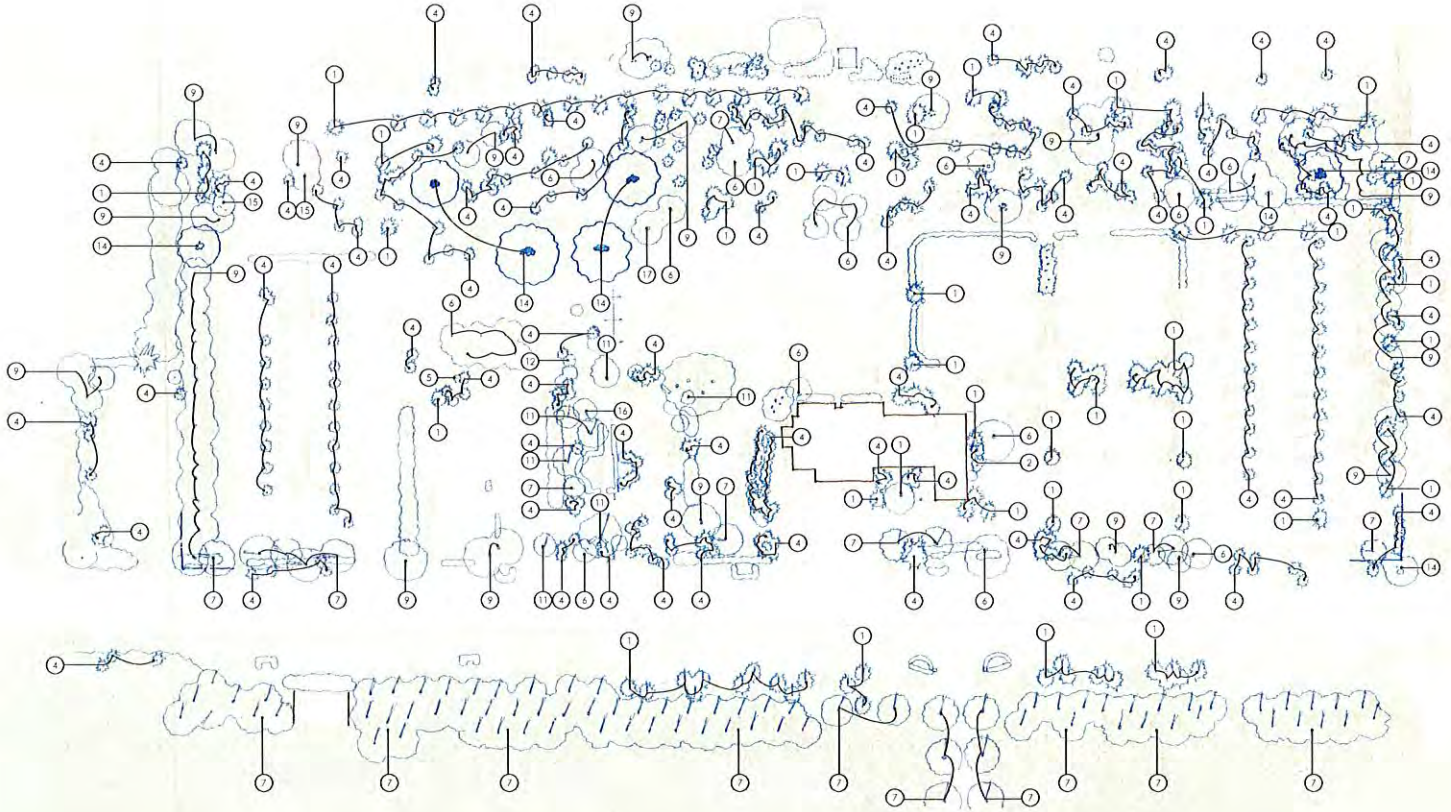
EXISTING VEGETATION DIAGRAM



Legend

- Property Line
- Dune Vegetation Line Pre-storm Event
- Shoreline & Islands of Red Mangroves
- Windward Dune Vegetation
- Leeward Dune Vegetation
- Open Lawn
- South Buffer Vegetation
- North Buffer Vegetation
- Tennis Court Hedge
- Atlantic Marine Wildlife
- Beach and Dune
- Lagoonal Waters Edge/Mangrove Islands
- Lagoon & Mangrove Islands

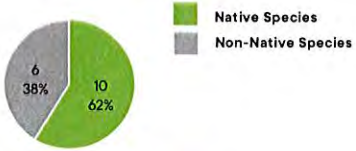
N

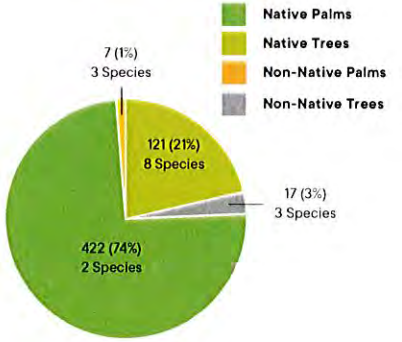


Existing Canopy Cover

1. Cocos nucifera - Coconut Palm
2. Thrinax radiata - Thatch Palm
3. Ptychosperma elegans - Solitaire Palm
4. Sabal spp.
5. Veitchia merrillii - Christmas Palm
6. Bursera simaruba - Gumbo Limbo
7. Calophyllum brasiliense - Brazil Beauty Leaf
8. Clusia rosea - Autograph Tree
9. Coccoloba uvifera - Seagrape
10. Coccoloba diversifolia - Pigeon Plum
11. Conocarpus erectus - Green Buttonwood
12. Delonix regia - Royal Poinciana
13. Dracaena marginata - Red Edged Dracaena
14. Ficus aurea - Strangler Fig
15. Mastichodendron foetidissimum - Yellow Mastic
16. Quercus virginiana - Live Oak
17. Guapira discolor - Blolly

Canopy Cover Analysis





126
Total species
George Glenn - Site Visit 12/16/2020

69
Native to south Florida

50
Species likely remnant of native historical ecosystems

60
Exotic species

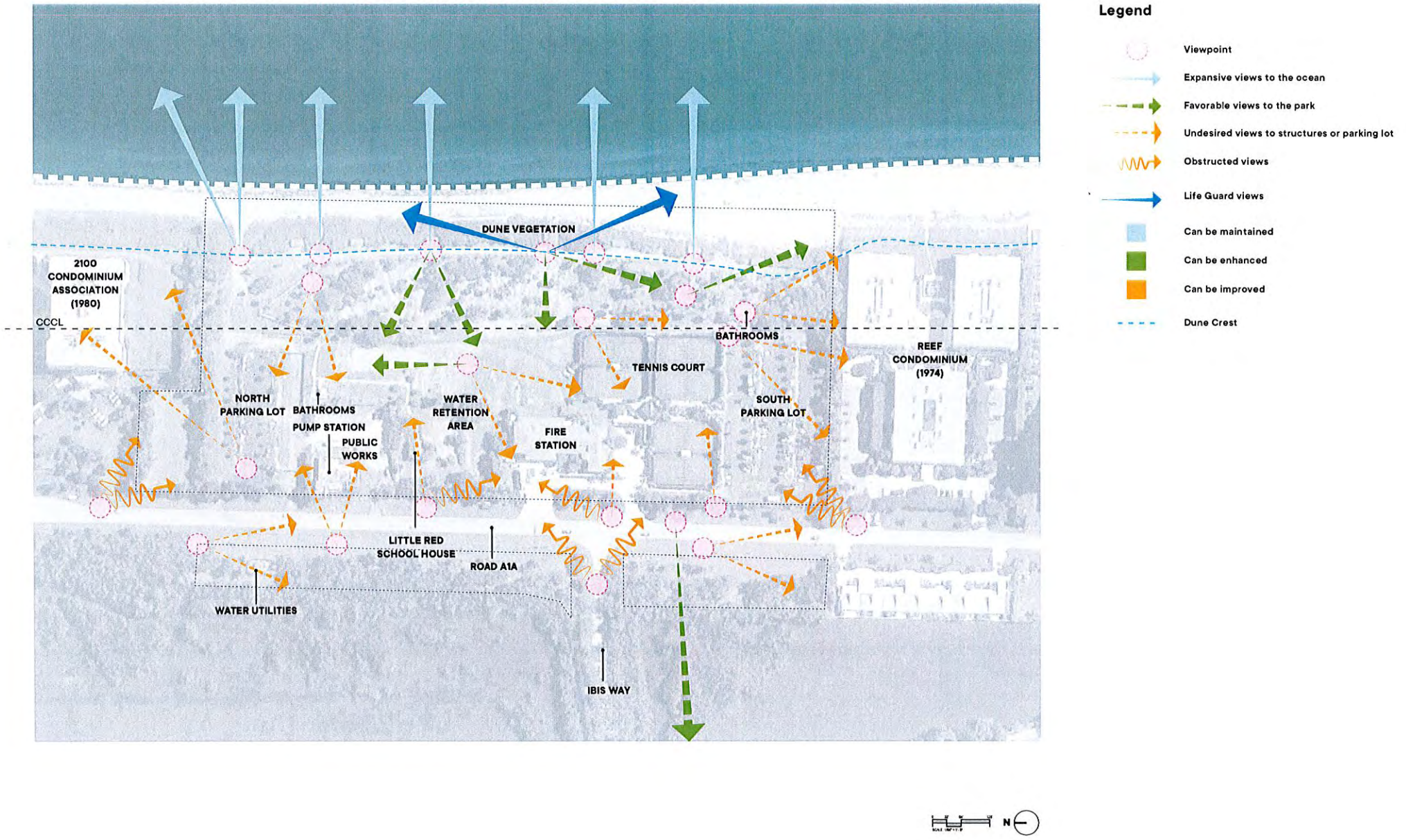
22
Invasive species

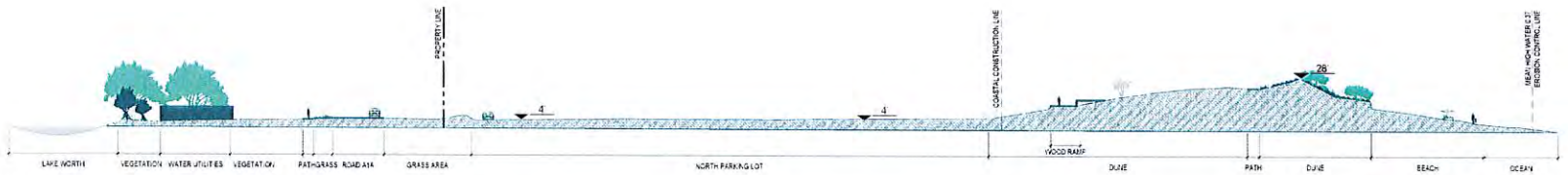
jungles

Ecological Restoration Opportunities

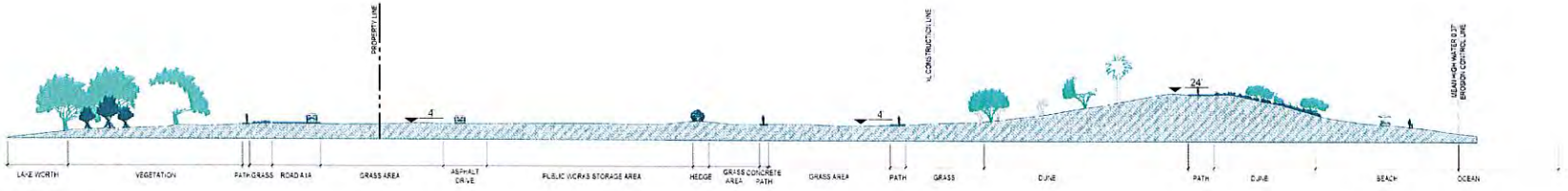
- Remove invasive and exotic species
- Restore Coastal Strand and Maritime Hammock with native vegetation
- Restore interdunal swale
- Introduce native species for pollinators and native fauna
- Introduce native species absent from Palm Beach

jungles


DUNE VEGETATION
2100 CONDOMINIUM ASSOCIATION (1980)
CCCL
BATHROOMS
REEF CONDOMINIUM (1974)
TENNIS COURT
NORTH PARKING LOT
BATHROOMS
PUMP STATION
PUBLIC WORKS
WATER RETENTION AREA
FIRE STATION
SOUTH PARKING LOT
LITTLE RED SCHOOL HOUSE
ROAD A1A
WATER UTILITIES
IBIS WAY
Legend
Viewpoint
Expansive views to the ocean
Favorable views to the park
Undesired views to structures or parking lot
Obstructed views
Life Guard views
Can be maintained
Can be enhanced
Can be improved
Dune Crest
N



SECTION A



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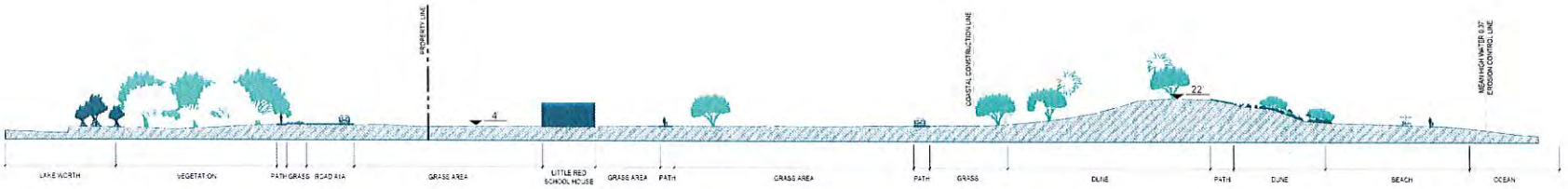

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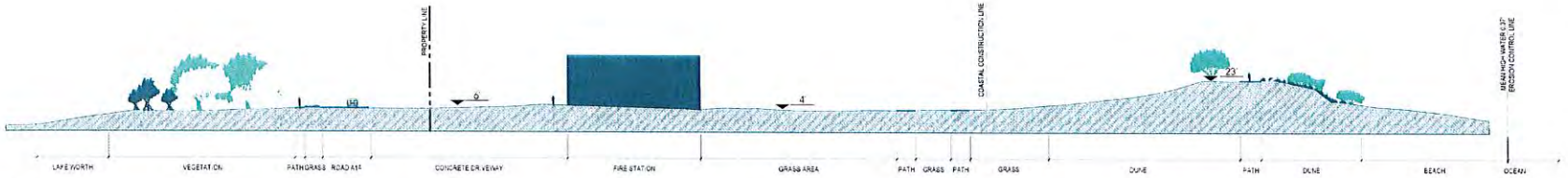

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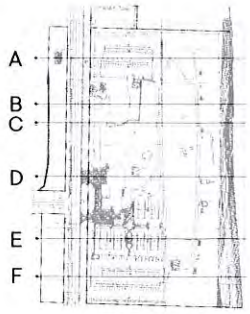

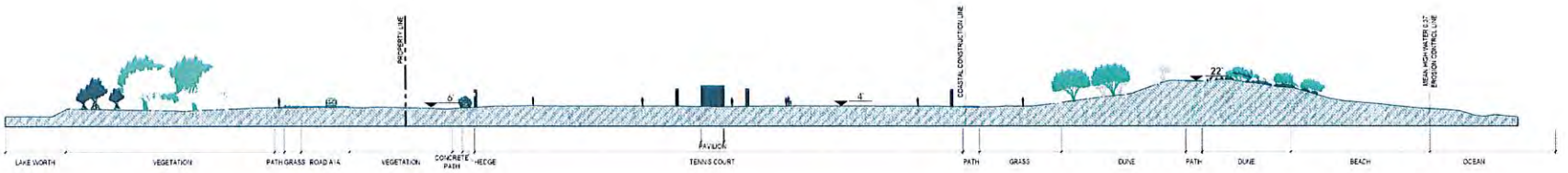

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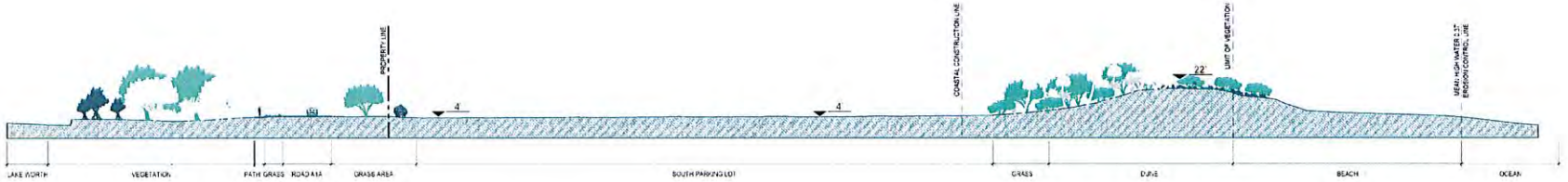

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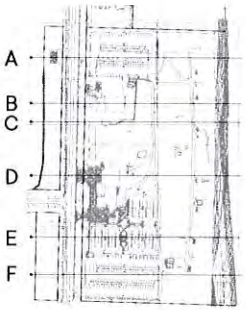
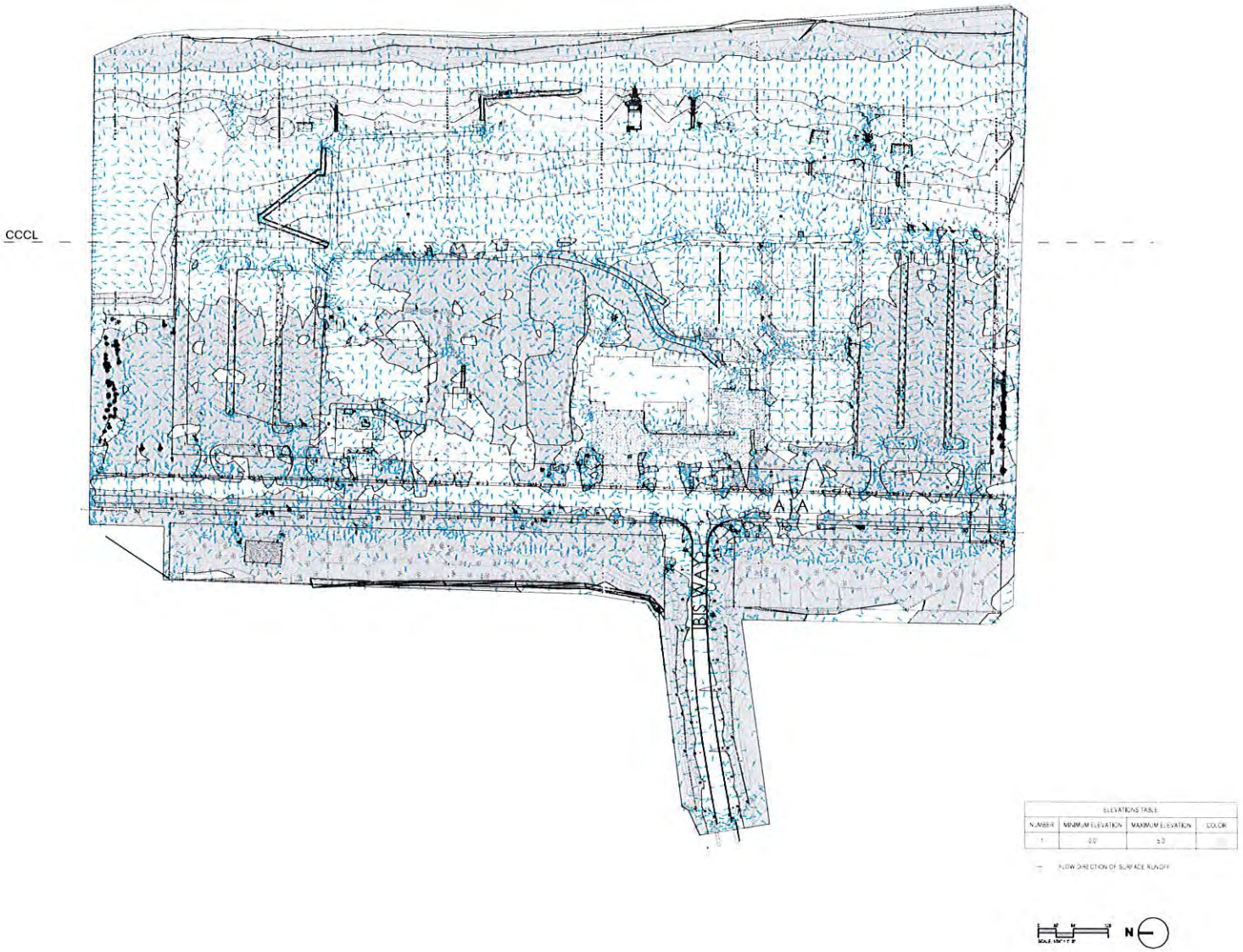
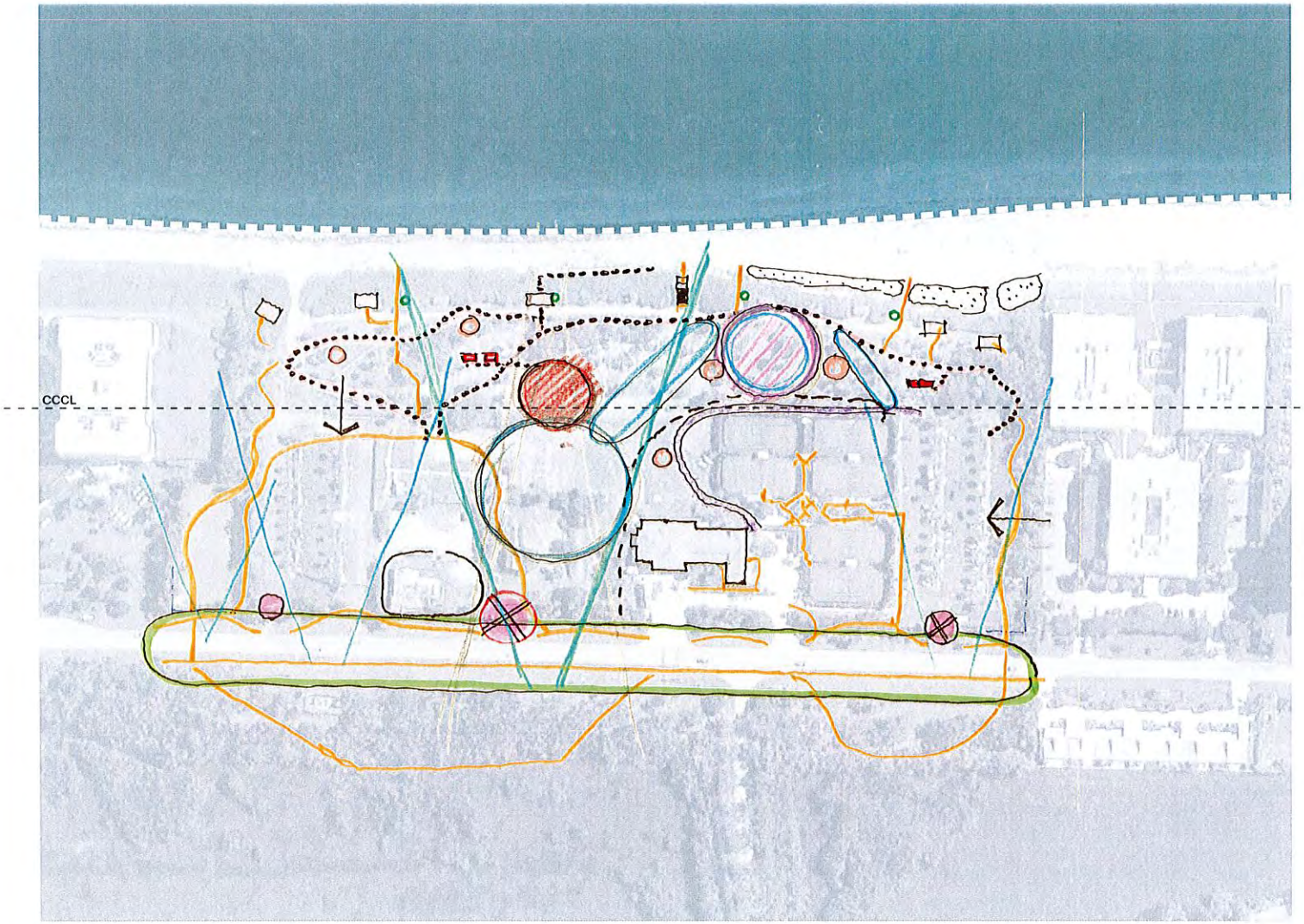




ELEVATIONS TABLE			
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR
1	0.0'	5.0'	

FLOW DIRECTION OF SURFACE RUNOFF

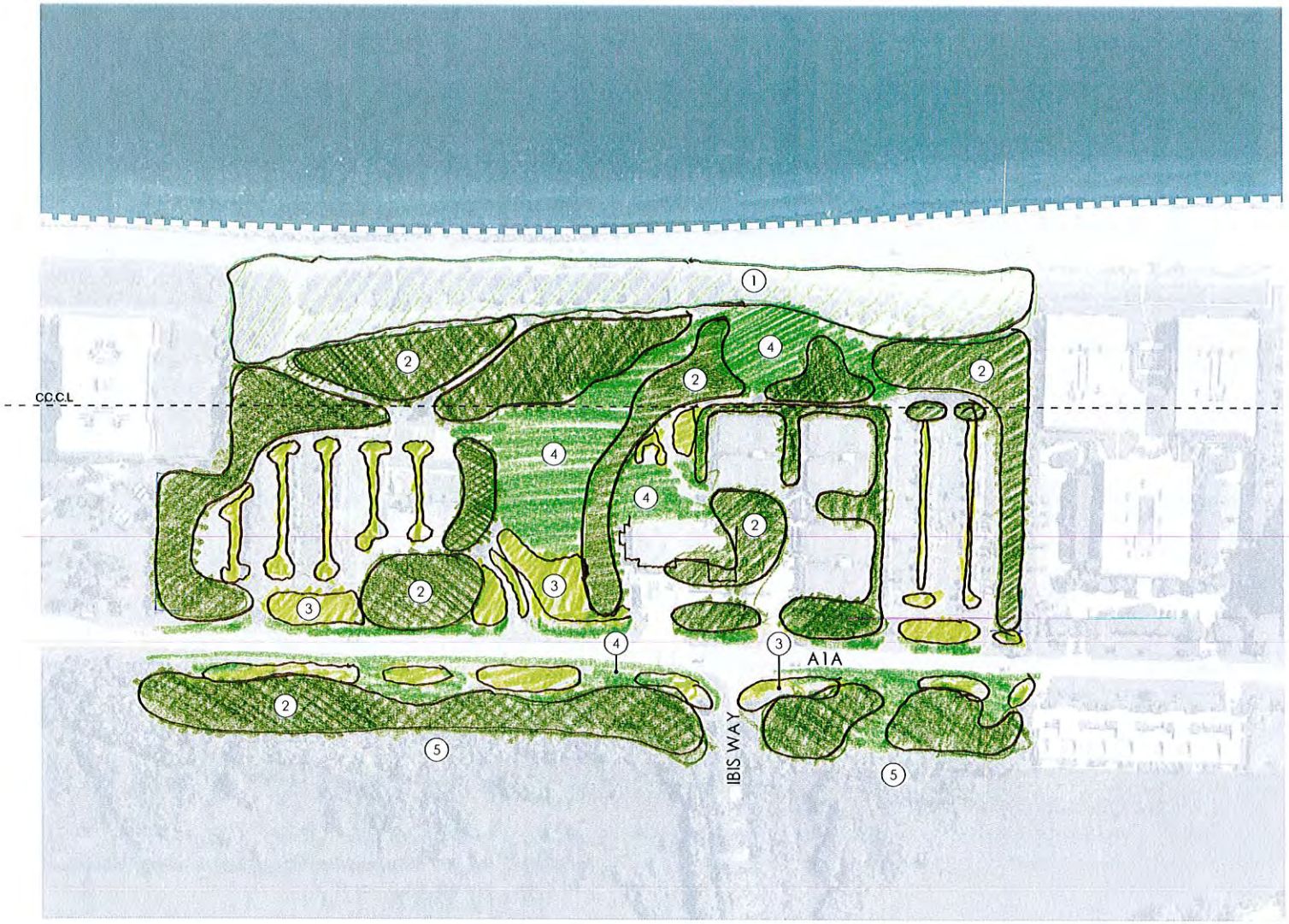
N



Legend

- Views
- Circulation
- Dune Restoration
- Great Lawn
- Horizon Plateau
- Access Point
- Little Red Schoolhouse Center

jungles



Legend

1. Front Line Dune
2. Maritime Woodland
3. Native Grasses, Groundcovers and Wildflowers
4. Native Grasses and Lawn Substitutes
5. Mangroves

Ecological Restoration Opportunities

- Remove invasive and exotic species
- Restore Coastal Strand and Maritime Hammock with native vegetation
- Restore interdunal swale
- Introduce native species for pollinators and native fauna
- Introduce native species absent from Palm Beach

Legend

1. Two-way Main Entrance into Park
Celebrate the scale and beauty. Entry portal like LLNPP. Entrance more central to park. Open major view to relocated school house and flexible open space. View takes in great lawn for larger community events and play.

2. Little Red Schoolhouse Center
Relocated Schoolhouse a few feet up the dune, nestled into the grove of Specimen Strangler Fig trees.

3. Great Lawn
Open space that embraces the sky, accommodates groups of all sizes. Community special events programming.

4. Horizon Plateau
Gathering area with open views to the horizon line over the Atlantic Ocean.

5. Connector Lawns for traversing grade

6. Nature / Pedestrian Paths

7. Sand Paths to Beach
Emergency equipment access.

8. ADA Accessible Path
Accommodates maintenance and patrol vehicles.

9. Two-way Park Entrance
Park and tennis court parking.

10. One-way Exit from Main Park Parking Area

11. Stone Wall around Public Works Center

12. Restricted Vehicular / Pedestrian Circulation

13. Picnic Areas

14. Thatched Shelters

15. Beach Showers / Drinking Fountains

16. Parking Areas
Permeable paving, minimized to allow more contiguous planting.

17. Tennis Courts

18. Physical Barrier for separating Fire Station Garden/Practice area and Tennis back of house

19. Upgraded Existing Restrooms

20. New Restrooms for Little Red Schoolhouse Center

21. Area for Future Pickleball Courts

22. Existing Fire Station

23. Beach Nourishment Access Path

24. Existing Lifeguard Stand

25. Dune Crest Path

26. New Playground

27. Service Path

28. Nursery/Propagation Area

29. Public Works Area

30. Water Utilities to be Screened

31. Water Element

32. Existing Mangroves to Remain

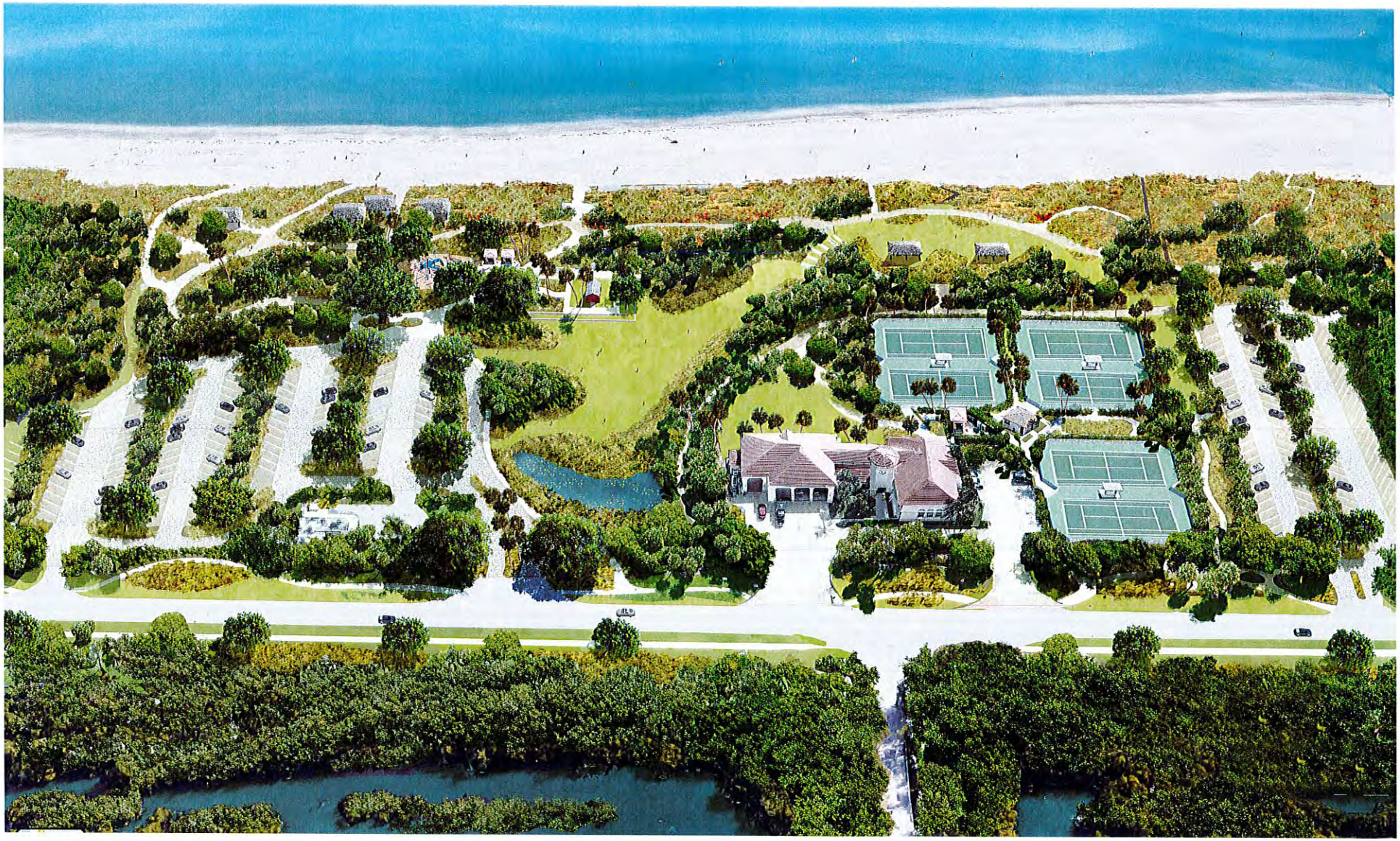
33. Grass Overflow Parking

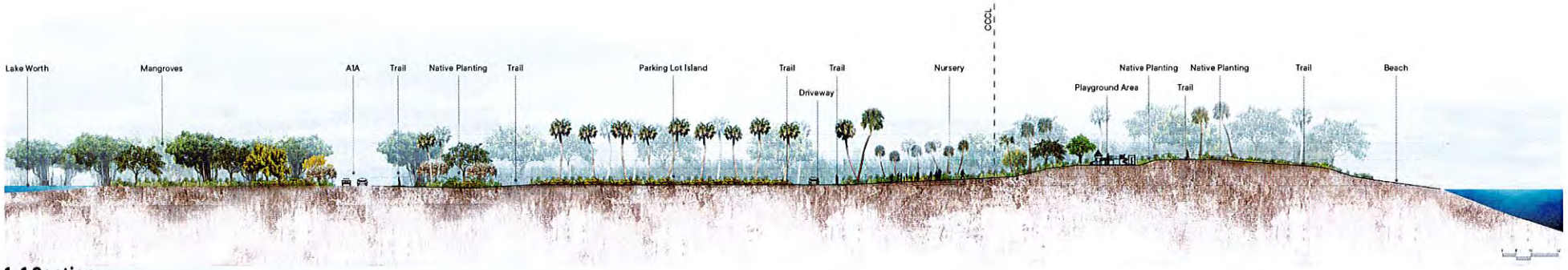
34. Dense Vegetative Buffer

Materials Legend

- Planting Area
- Lawn
- Grass Pave
- Water
- Decomposed Granite
- Decorative Concrete
- Oolite Walls
- Permeable Pavers
- Dune Planting
- Building
- Wood
- Mulch
- Sand

*Total Parking: 265
*Total Path Length: 9,662 ft
*Total Project Area: 826,368 sq.ft
*Total Proposed Green Space: 460,000 sq.ft 55.67%
*Total Existing Green Space: 457,035 sq.ft 55.30%





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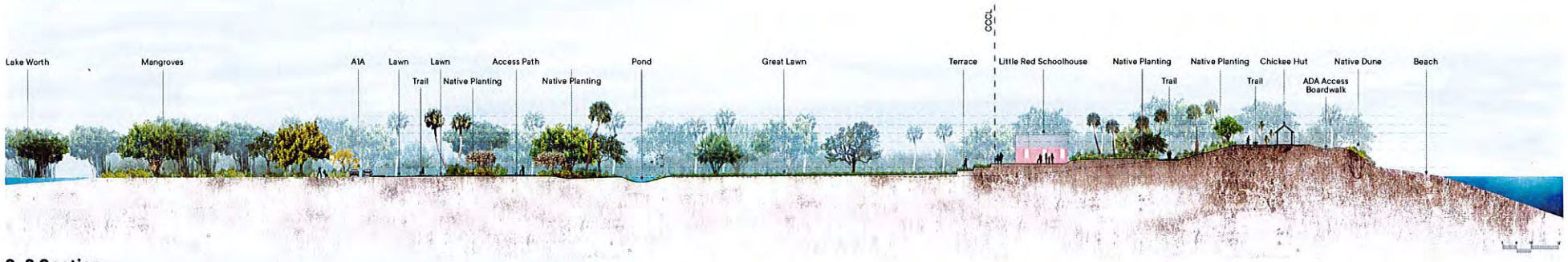

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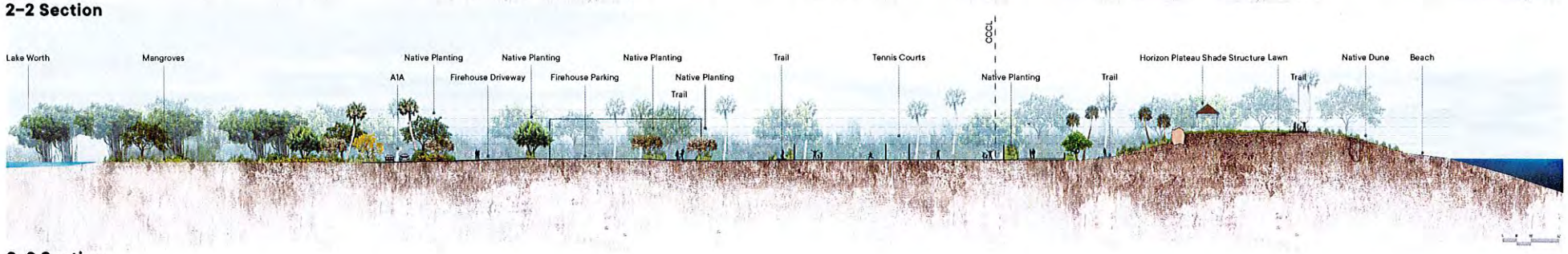
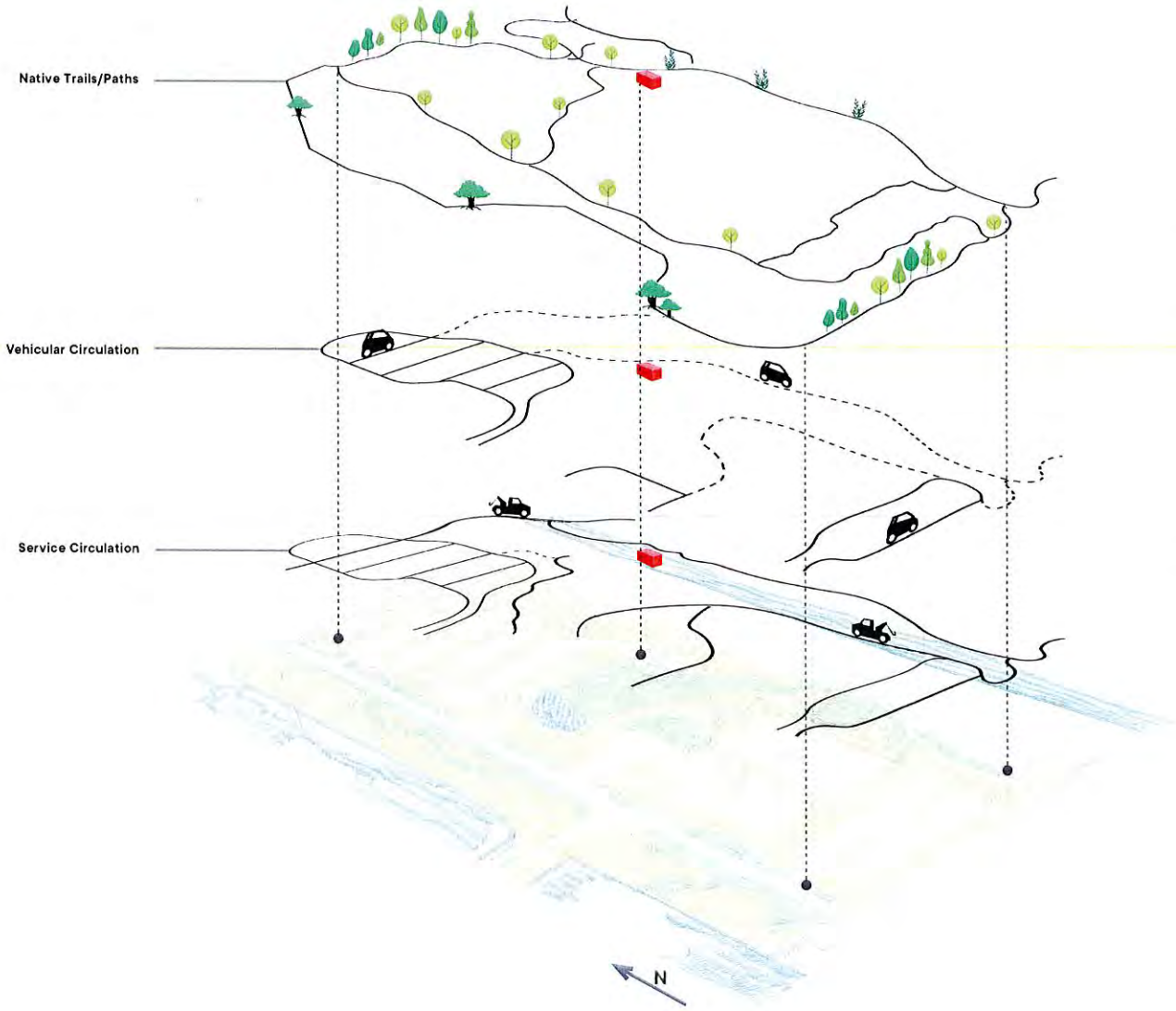


3-3 Section



Site Metrics

4 New Pickleball courts

7,873 linear feet (1.5 miles) of pedestrian paths

8,652 square feet of water features

46,000 square feet of open lawn

29,600 square feet of meeting/activity space

4,700 square feet of playground

6 exercise stations

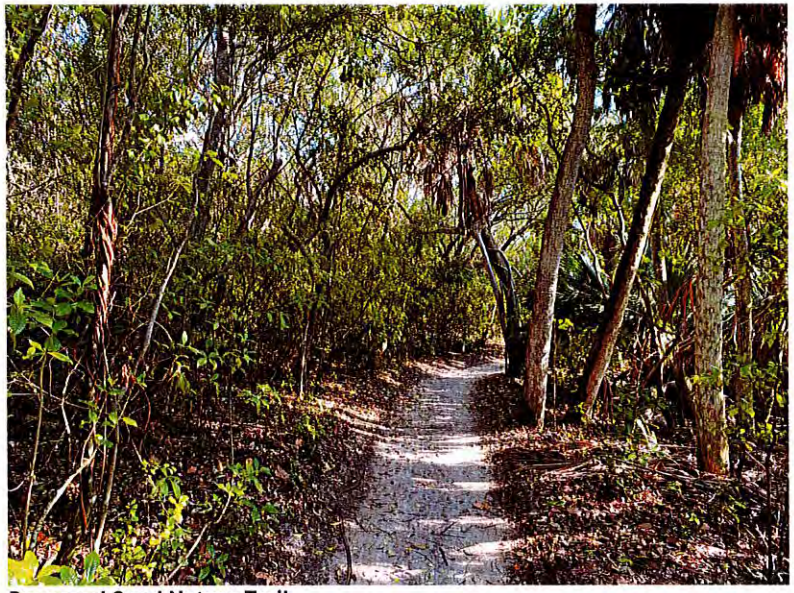
16 education checkpoints

Landscape Area Takeoffs

EXISTING
Park Total: 855,252 SF
Landscape Total: 607,497 SF

PROPOSED
Park Total: 855,252 SF + 20,074 SF = 875,326 SF
Landscape Total: 633,787 SF

Proposed Dune Crest Trail



Proposed Sand Nature Trail

Preferred Vehicular Road

Across the Great Lawn and a few feet up the dune, relocated from its current location, this space is meant to serve as the center of activity at Phipps Ocean Park. Being a schoolhouse will be only part of its educational mission, as now it will be the confluence point for all visitors.

Embedded in native vegetation and under the shade of large canopy trees, an outdoor space will host meetings, classes, and activities for small and medium groups. Larger groups can be accommodated on the terraced steps, overlooking the Great Lawn.

Legend

1. Little Red Schoolhouse Center
Relocated Schoolhouse a few feet up the dune, nestled into the grove of Specimen Strangler Fig trees.

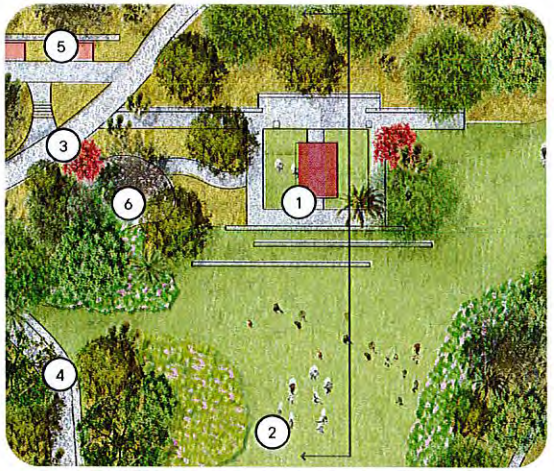
2. Great Lawn
Open space that embraces the sky, accommodates groups of all sizes. Community special events programming.

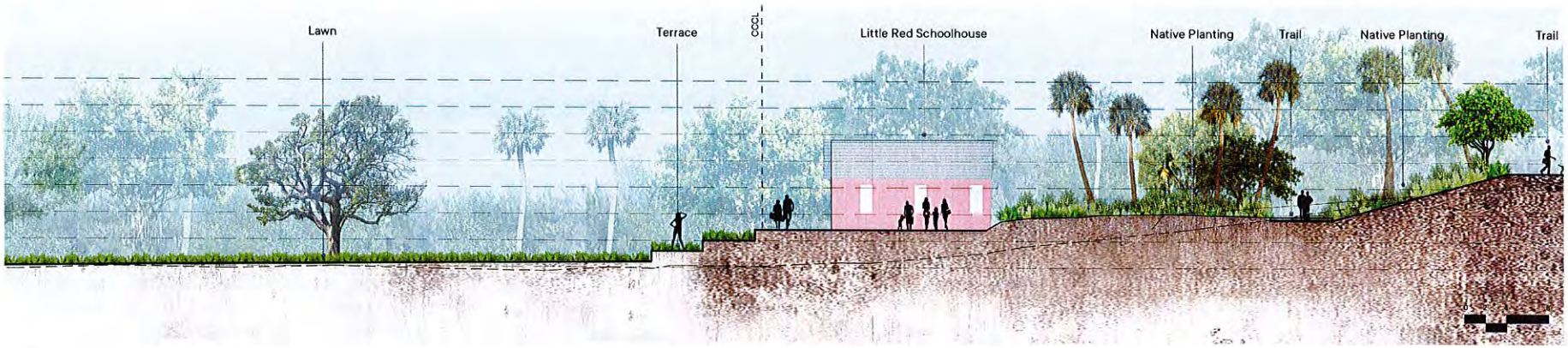
3. Nature / Pedestrian Paths

4. Pedestrian Circulation / Restricted Vehicular

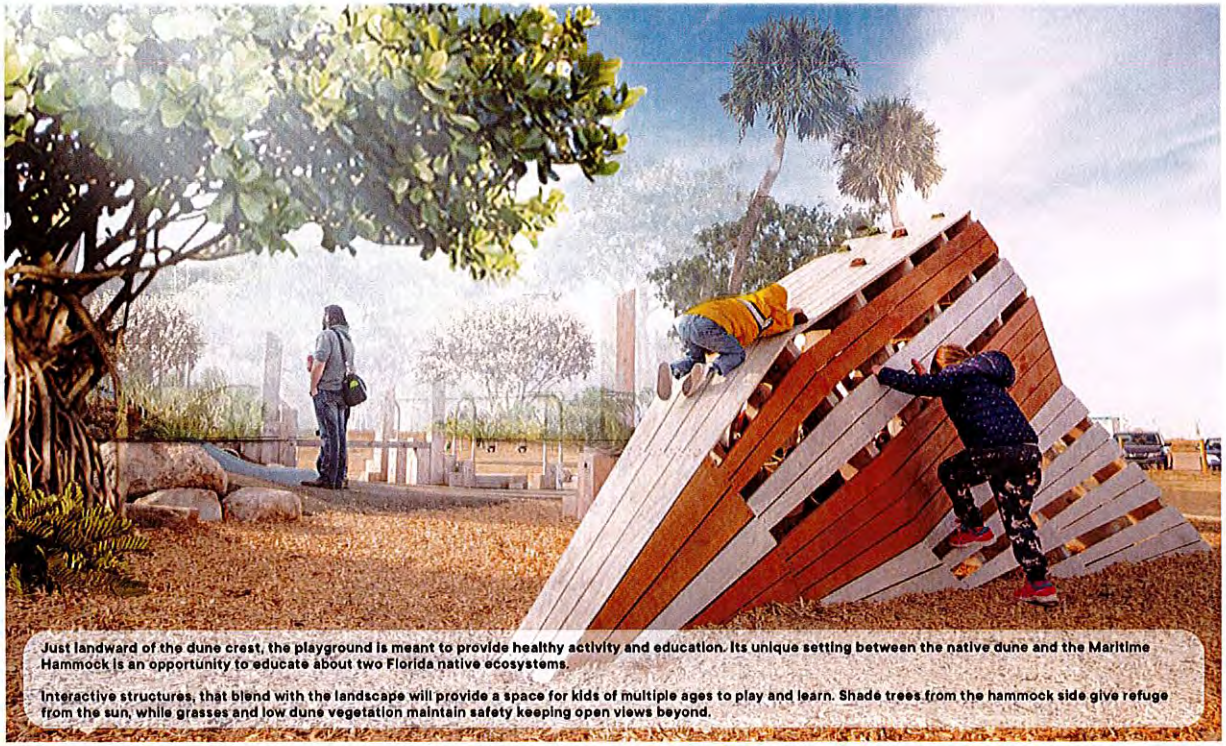
5. New Restrooms for Little Red Schoolhouse Center

6. Outdoor Class Space





PHIPPS OCEAN PARK

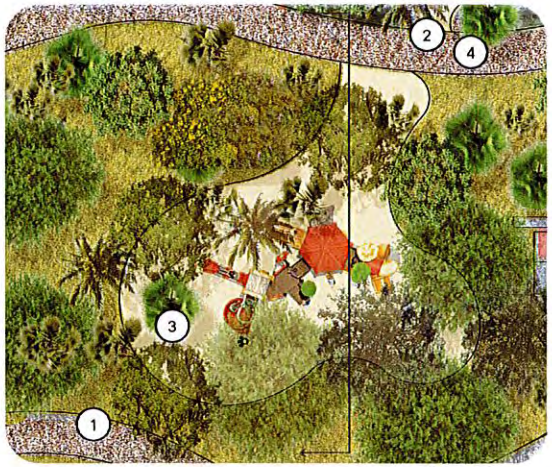


Just landward of the dune crest, the playground is meant to provide healthy activity and education. Its unique setting between the native dune and the Maritime Hammock is an opportunity to educate about two Florida native ecosystems.

Interactive structures, that blend with the landscape will provide a space for kids of multiple ages to play and learn. Shade trees from the hammock side give refuge from the sun, while grasses and low dune vegetation maintain safety keeping open views beyond.

Legend

1. Nature / Pedestrian Paths
2. Sand Paths to Beach
Emergency equipment access.
3. New Playground
4. Dune Crest Path



jungles

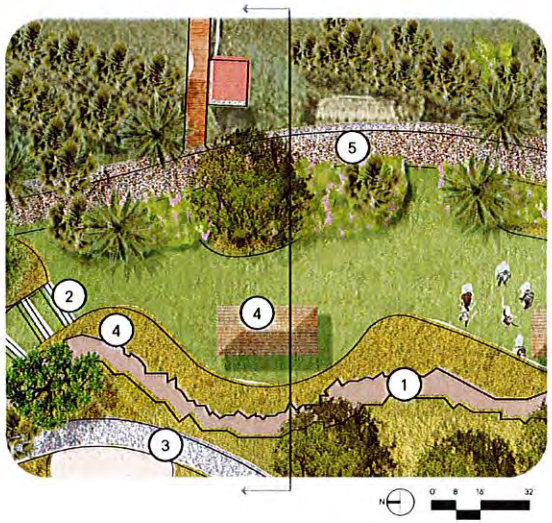
jungles

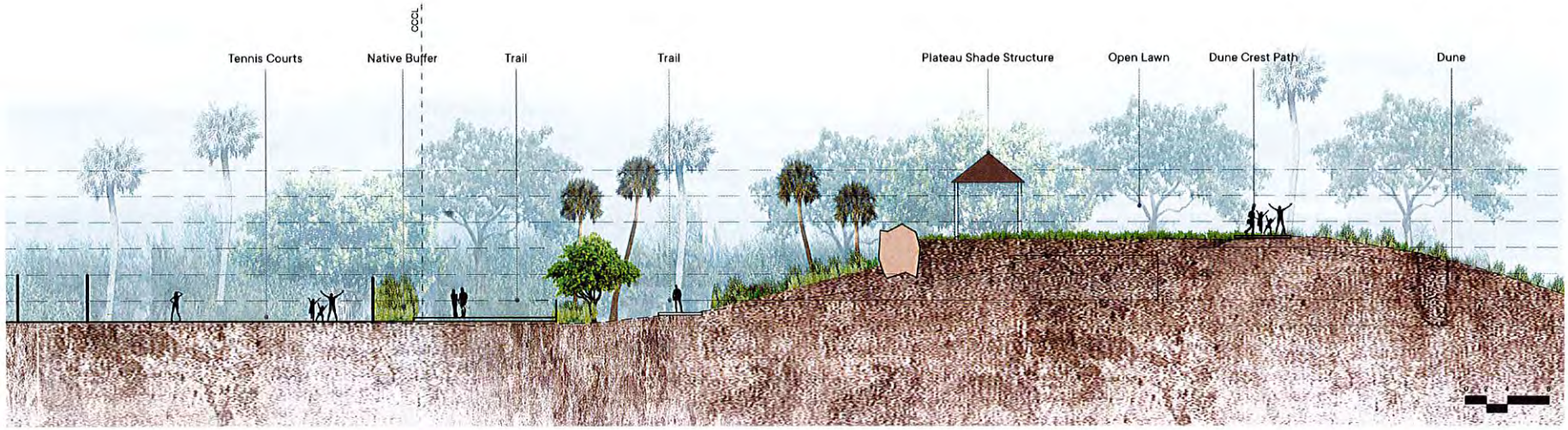
TRINIDAD

This space is meant to unify the south and north sides of the park, which now are severed by the tennis courts. Rising to the dune elevation, the Horizon Plateau provides all around views to the ocean and the west side of the park. Shade around the perimeter, and sun at the center, the space is meant to congregate, can host classes, activities, and or meetings.

Legend

1. Retaining Wall
Gathering area with open views to the horizon line over the Atlantic Ocean. Beach overlook. Possible snack shop, shelter element.
2. Connector Lawns for traversing grade
3. ADA Accessible Path
Accommodates maintenance and patrol vehicles.
4. Picnic Areas
5. Dune Crest Path

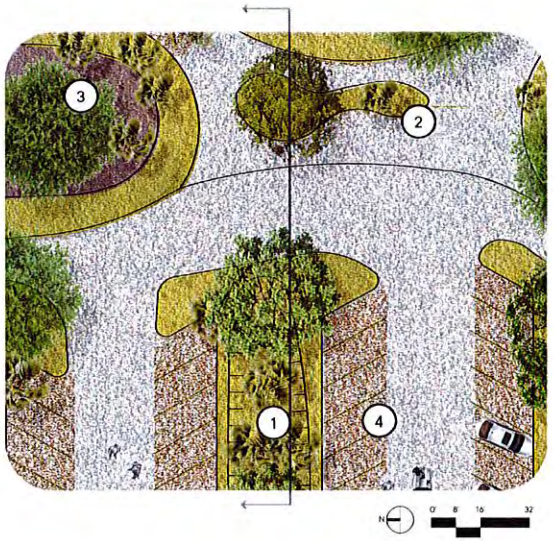


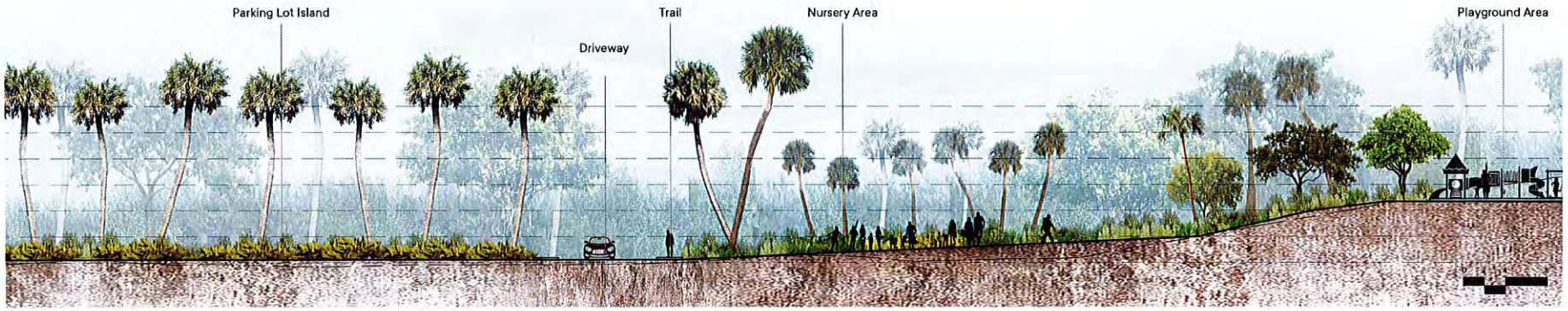


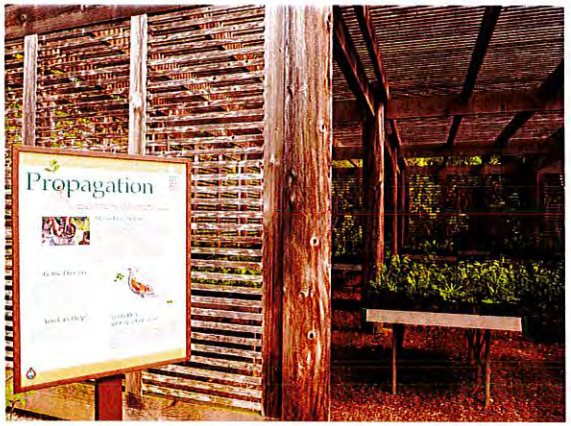
Amidst a thicket of trees and Coastal Strand vegetation, the Propagation Area will host an initiative that will educate the visitor about native species, and in the future provide the park with native plants and trees for later phases of the project.

Legend

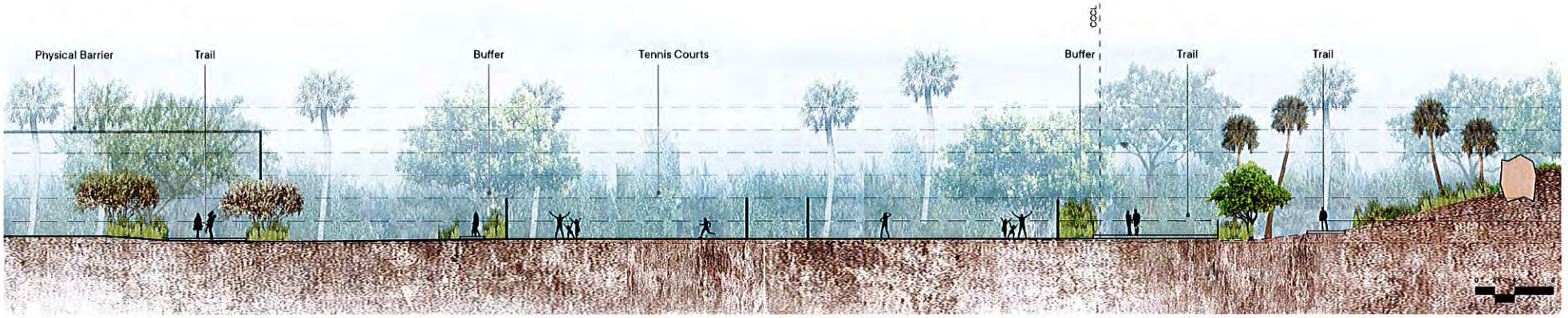
1. Parking Lot Island
2. ADA Accessible Path
3. Nursery Propagation Area
4. Parking Areas
Permeable paving, minimized to allow more contiguous planting.






Propagation

TENNIS CENTER - ENLARGEMENT



MANGROVE PATHS

A path meanders through the parking lot island designed to collect surface water runoff from the adjacent parking areas. Native planting screens vehicles and reduces the scale of the parking areas.

Legend

1. Parking
2. Planting Area
3. Future Pickleball Area
4. Tennis Court

South Property Line - Existing Conditions

South Property Line - Proposed Screening

Decomposed Granite Paving

Crushed Coquina Shell Paving

Gravel Pave Grid System

Path Paving

- Highly Permeable
- ADA Accessible
- Natural & Sustainable Materials

Wasau Permeable Pavers

Enlargement

Texture

Tremron Pervious Pavers
Sierra

Sand Dune

Cappuccino

Sierra

Autumn Blend

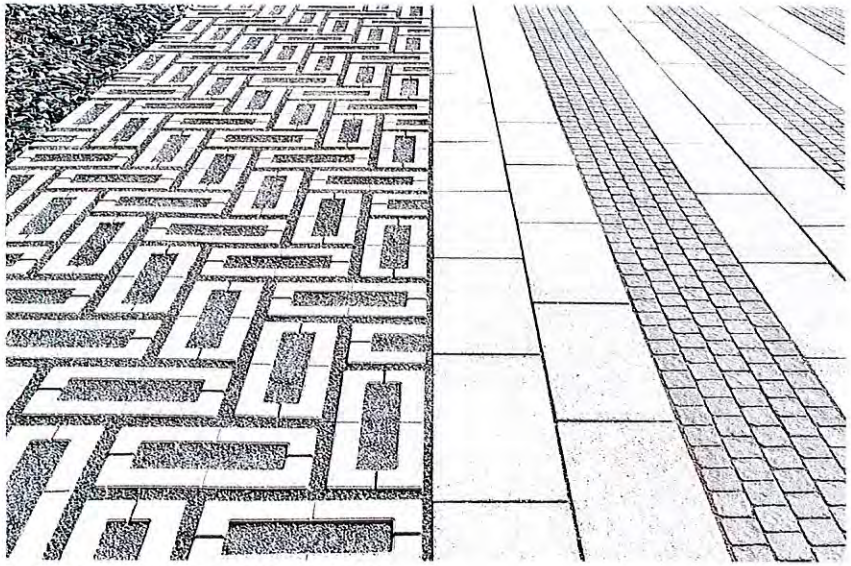
6x4, 6x6, 6x9

4x8

Driveway Paving

- Highly Permeable
- ADA Accessible
- Vehicular Rated

Concrete Grass Pave Pavers



Concrete Gravel Pave & Permeable Pavers

Plastic Gravel & Grass Pave Paving

Driveway Paving

- Highly Permeable
- Vehicular Rated

CCCL

CCCL

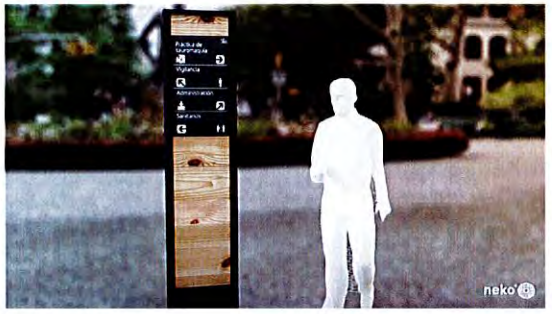
Norma's Garden... A Place of Healing

CALZADA
JACARANDAS
neko

neko

neko

TLALPAN


neko

CITY BY THE LAKE

FERN CANYON TRAIL
FERN CANYON TRAIL
MOUNT HOLLYWOOD
BIRD SANCTUARY
28
FERN CYN TRAIL
FERN CYN TRAIL

Concept 1

PLAN
Griffith Park
TRAILS
Griffith Park
TRAILS
mile
2

CCCL

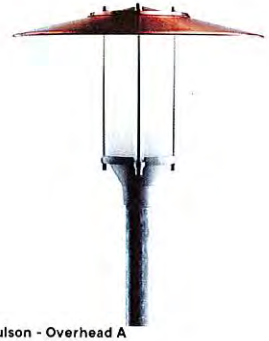
jungles

Stone Educational Checkpoint

Wood Educational Checkpoint

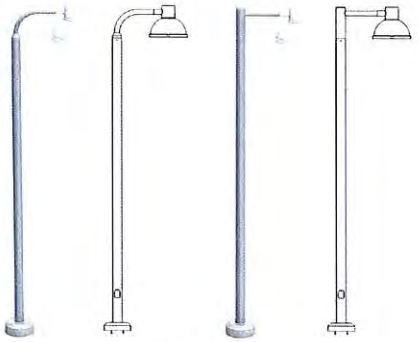
Symbol Alerting Users of Interpretive Material

QR Codes at each Checkpoint to access Content



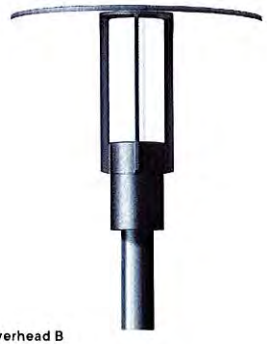
Louis Paulson - Overhead A

Louis Paulson - Overhead B



Louis Paulson - Overhead C

Bega - Overhead A



Bega - Overhead B

Bega - Overhead C

Bega - Overhead D

Louis Paulson - Bollard A

Louis Paulson - Bollard B

Louis Paulson - Bollard C

Aorbis- Bollard D

eXcelsior LIGHTING, INC.

MODEL PL-15 12V 35W T4 3W LED **PL-15**

Simply Better by Design™

Model	PL-15
Lamp	T4 Halogen or LED
Maximum Wattage	35 watt halogen/ 3 watt LED
Input Voltage	12V (remote transformer required)
Material	Aluminum or Brass
Hardware	Stainless Steel
Finishes	Seven Powder Coat Two Metals
Lens	Tempered Frosted Glass
Mounting	1/2" NPS (order mount separately)
Height	12" or 20"
Socket	GY 6.35 Bi Pin Porcelain
IP Rating	64
Wiring	6 ft. 16/2 low voltage cable
Weight	Brass: 3.8 lbs., Aluminum: 1.8 lbs
Warranty	Brass: 25 Years Aluminum: 10 Years
Dimensions	3 1/4" square tube: 20" H x 7" L

Shown in Dark Bronze Finish (DB)

Designed to accept standard Bi Pin style retrofit LED lamps

METALS:

Aluminum:

Brass:

ORDERING LOGIC:

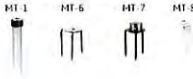
Model:	PL - 15
Metal:	A - Aluminum B - Brass
Height:	12 - 12" 20 - 20"
Finish:	BK - Black BZ - Bronze WT - White SG - Beige NT - Natural BKT - Black Texture BZT - Bronze Texture SL - Silver CA - Clear Anodized DB - Dark Bronze

ORDERING EXAMPLE: PL - 15 - B - 20- DB

MODULAR DESIGN:

The PL 15 path light is available in aluminum or brass square tubing. The components that house and seal the lamp are machined from copper free aluminum, then anodized to prevent corrosion from all types of elements. Stainless steel hardware and silicone o-ring seals are standard features. To relamp this luminaire, simply remove one screw and slide out the lamp housing.

Mounting Stake Options:



MT-1 MT-6 MT-7 MT-8

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eXcelsior LIGHTING, INC.

MODEL RL-1L 12VAC/DC 9W LED MODULE **RL-1L**

Simply Better by Design™

Model	RL-1L
Lamp	LED Module 2W - 9W Adjustable
Wattage	12W Startup draw
Input Voltage	12VAC/DC (transformer required)
Kelvin	2700K, 3000K CRI = 85
Material	Machined Aluminum
Hardware	Stainless Steel
Finishes	Seven Polyester Powder Coat
Lens	Tempered Clear Glass
Cap Accessories	Holds two accessories (optional)
Mounting	Brass 1 inch loop
Socket	GY 6.35 Bi-pin Porcelain
Certification	Wet location, IP Rating: 66
Wiring	12" 18 ga Shrink Tube Covered, black
Weight	10 lbs
Warranty	10 Years
Dimensions	2 3/8" dia. x 5 3/4" (7 1/8") overall

Shown in Bronze Powder Coat Finish (BZ)

Shown in Bronze Texture Finish (BZT)

2W 4W 6W 9W

METALS:

6061-T6 Aluminum

Straight Angle

ORDERING LOGIC:

Model	RL - 1	
Metal	A - Aluminum	
Cap Style	S - Straight A - 45° Angle	
Cable	0 - None 5 - 5 ft 10 - 10 ft 15 - 15 ft	20 - 20 ft 25 - 25 ft 30 - 30 ft
Finish	BK - Black BZ - Bronze WT - White BG - Beige	BKT - Black Texture BZT - Bronze Texture SL - Silver CA - Clear Anodized

ORDERING EXAMPLE: RL - 1L - A - S - 0 - BK-52*

STAINLESS STEEL CABLE:

We can provide 1/16" stainless steel cable with hardware if you like. Select from various lengths from 5-30 in five foot increments. Contact factory for more information.

ANODIZING PROTECTION:

To increase the corrosion resistance in our products, we use a three step process:

1. Machine 6061-T6 copper free aluminum
2. Anodized pre-treatment applied
3. Polyester powder coat finish applied

SEALED WIRE PASS-THRU SYSTEM:

Our molded, high temperature silicone wire pass thru system is installed into every product to prevent water intrusion. Water will not leak into the lamp compartment when used for downlighting in trees.

*See Module sheet to select module type to be installed

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eXcelsior LIGHTING, INC.

MODEL FD-4 12V 20W MR11 3W LED **FD-4**

Simply Better by Design™

Model	FD-4
Lamp	MR11 Halogen (order separately)
Maximum Wattage	20 watt, 3 watt LED
Input Voltage	12V (remote transformer required)
Material	Machined Aluminum
Hardware	Stainless Steel
Finishes	Seven Polyester Powder Coat
Knuckle	Tapered & Positive Locking
Lens	Tempered Clear Glass
Cap Accessories	Holds Three accessories (optional)
Mounting	1/2" NPS (order mount separately)
Socket	GY 6.35 Bi-Pin Porcelain
IP Rating	66
Certification	Wet location landscape, UL*838
Wiring	2ft. 18/2 LV wire leads
Weight	7 lbs
Warranty	10 Years
Dimensions	1 3/4" dia. x 7 1/4" overall

Shown in Bronze Powder Coat Finish (BZ)

ELI (MR8) ELI (MR11) BRILLIANCE

METALS:

6061-T6 Aluminum

Mounting Stake Options:

MT-1 MT-2 MT-6 MT-7 MT-8

ORDERING LOGIC:

Model	FD - 4
Metal	A - Aluminum
Finish	BK - Black BZ - Bronze WT - White BG - Beige BKT - Black Texture BZT - Bronze Texture SL - Silver CA - Clear Anodized

ORDERING EXAMPLE: FD - 4 - A - BK

ANODIZING PROTECTION:

To increase the corrosion resistance in our products, we use a three-step process:

1. Machine 6061-T6 copper-free aluminum
2. Black anodized pre-treatment applied
3. Polyester powder coat finish applied

SEALED WIRE PASS-THRU SYSTEM:

Our molded, high temperature silicone wire pass thru system is installed into every product to prevent water intrusion. Water will not leak into the lamp compartment when used for downlighting in trees. The socket is replaceable because it is not glued in.

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Landscape Lighting

COASTAL SYSTEMS INTERNATIONAL, INC.
484 South Dixie Highway · Coral Gables, Florida 33146
Tel: 305.661.3655 · Fax: 305.661.1904
www.coastalsystemsintl.com

403900

April 13, 2021

RAYMOND JUNGLES, INC.
2964 Aviation Avenue
Miami, FL 33133

Via E-mail: guy@raymondjungles.com

RE: COASTAL FEASIBILITY RELATIVE TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION - DIVISION OF WATER RESOURCE MANAGEMENT (FDEP) AND FLORIDA BUILDING CODE (FBC) COASTAL CONSTRUCTION REGULATIONS FOR THE PHIPPS PARK MASTER PLAN, TOWN OF PALM BEACH, PALM BEACH COUNTY, FLORIDA

Dear Mr. Champin:

Coastal Systems International, Inc. (Coastal Systems) provides this letter report for the Phipps Park Master Plan (Project) with the purpose of summarizing the permitting feasibility of the proposed designs relative to the Florida Department of Environmental Protection (FDEP) and Florida Building Code (FBC) coastal construction regulations. Any code considerations or requirements are solely relevant if the site undergoes a substantial improvement, or if improvements to the foundations of the existing structures are made.

Chapter 161, Florida Statutes (F.S.), is known as the "Beach and Shore Preservation Act". Section 161.053, F.S., declares that the beaches and dunes of Florida are valuable public resources and provides for the establishment of Coastal Construction Control Lines (CCCL) based on the predicted landward limits of 100-year storm impacts. This section also provides for the regulation of construction activities partially or wholly seaward of the CCCL that may "jeopardize the stability of the beach dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access". [Chapter 161.053(1)(a), F.S.]

The Florida Department of Environmental Protection (FDEP) issues permits for construction or renovations located seaward of the CCCL throughout the State. While any future site improvements seaward of the CCCL will need to be provided to the FDEP for review and feedback, approvals are available and feasible.

GENERAL SITE CHARACTERISTICS

Site Location

The subject site is located at 2185 South Ocean Boulevard, in the Town of Palm Beach, Florida. The subject site is bounded by A1A on the west, adjacent to Ibis Way, and on the east by the Atlantic oceanfront beach (hereafter referred to as the "site").

Existing Site Conditions

According to the survey prepared by Engenuity Group, Inc., updated on November 2nd, 2020, the site is partially developed east of the CCCL with concrete walkways, vegetated dunes with chickee huts, dune walkovers, and landscape/hardscape. A heavily vegetated dune system extends the length of the site, which serves to define the boundary between developed land and the sandy beach, and to protect the developed land. Landward of the CCCL, the site also supports tennis courts and parking lots.

According to the latest Flood Insurance Rate Map No. 12099C0593F, dated October 5, 2017, the subject site is located partly within an AE (+6 feet NAVD) Flood Zone and partly within a X Flood Zone (Figure 1). The full map is enclosed as an appendix to this report.

Figure 1. FEMA Flood Zone Map

Historical Beach Conditions

The Florida Department of Environmental Protection (FDEP) has designated the adjacent beach as "Critically Eroded". This designation spans between FDEP Range Monuments R-76 south to R-128, encompassing the Park beach (R-119).

The Palm Beach County Shoreline Protection Plan (2014) commits an increasing budget for beach nourishment projects every six (6) years in front of the Park. The "Phipps Park and North Reach 4 Beach & Dune Restoration" project will utilize material dredged from Lake Worth Inlet, work that will be conducted by the U.S. Army Corps of Engineers. The Park beachfront area first received nourishment in 2006. In 2011, approximately 56,000 cubic yards of sand was placed to construct the dunes and nourish the beach.

In early 2021, the Town of Palm Beach commenced the next beach nourishment activity, which included placing 460,000 cubic yards of dredged sand between Sloan's Curve (approximately 0.42 miles north) and the Ambassador Hotel (approximately 1.0 mile south). This beach nourishment effort is anticipated to be completed by May 2021.

Upon review of municipal budgets, the next large scale nourishment project is anticipated to occur in 2024 and is valued at over $21 Million.

There are no restrictions from participating in a government-funded nourishment project. Should a nourishment project be designed for a segment of critically eroded beach and should the opportunity be offered to the site, the site may accept.

FDEP COASTAL CONSTRUCTION REGULATIONS

FDEP environmental coastal construction permits for structures and activities proposed seaward or partially seaward of the CCCL are issued upon provision of sufficient evidence that any impacts associated with the proposed construction have been minimized, and that the future improvements will not impose a significant adverse impact to the beach-dune system, including potential cumulative effects within the same coastal cell.

Structure Siting

Line of Construction: In general, proposed structures must be located a sufficient distance landward of the beach and dune to allow for natural shoreline fluctuations and to protect beach-dune stability [Chapter 62B-33.005(9), F.A.C.].

Structures may generally be constructed as far seaward as other similar structures in the area. Pursuant to Chapter 161.053(4)(b), F.S., "if in the immediate contiguous or adjacent area a number of existing structures have established a reasonably continuous and uniform construction line closer to the line of mean high water than the foregoing, and if the existing structures have not been unduly affected by erosion, a proposed structure may be permitted along such line on written authorization from the department..." Chapter 62B-33, F.A.C., further interprets this provision as applying to "major" structures only, and for proposed structures to be compared to "similar" structures in the site vicinity. Therefore, there may be multiple lines of construction for structures of different types/impacts.

The FDEP has historically considered the contiguous or adjacent area to include the shoreline within 1,000 linear feet north and south of a subject site. Methodologies for determining the line of construction for a site range from "connecting the dots" between seaward edges of similar structures in the site vicinity (Figure 2) to averaging setbacks for structures from the Mean High Water Line (MHWL) or Erosion Control Line.

Figure 2 portrays the possible line of construction for the Park improvements. However, the line of construction below was drawn between two multi-family residential buildings, which are not structures that are directly comparable to the proposed Park improvements; therefore, this line of construction should only be used as a frame of reference for structures with piling foundations.

Figure 2. Preliminary Line of Construction

30-Year Erosion Projection. Pursuant to chapter 161.053(6), F.S., no major structures may be permitted seaward of the 30-Year Erosion Projection (the projected location of the seasonal high water line 30 years after permit application). On beaches with planned, funded beach nourishment projects such as this, the setback is calculated by measuring the distance between the mean and the seasonal high water lines, factoring in the life remaining in the existing beach nourishment project, and projecting that distance landward of the Erosion Control Line (ECL). To conduct this calculation, the site survey will need to be updated to include the seasonal high water line. The FDEP will only accept topographic data collected within 6 months prior to permit application submittal. Written confirmation of the 30-Year Erosion Projection will be requested of the FDEP upon receipt of an updated survey.

Excavation/Fill Balance

Pursuant to several separate provisions of the Florida Statutes and Administrative Code, there must be no net excavation of sandy soils seaward of the CCCL. All sandy material excavated seaward of the CCCL must remain seaward of the CCCL and be placed in the immediate area of construction. Generally, this means that there must be a net balance of excavated materials onsite; it is possible to get authorization from the FDEP to place excess excavated material within the beach-dune system immediately adjacent to the site, provided that the destination site is also approved. Fill material may be imported from State or local approved sources, such as Florida sand mines, for future improvements.

Volumes of excavation and fill required for all improvements seaward of the CCCL will need to be provided by the design team in order to confirm compliance with FDEP requirements. Further evaluation will be necessary upon receipt of detailed architectural plans, foundation plans, and a geotechnical report outlining the excavated material's compatibility with beach quality material.

Non-Habitable Major Structures

Any major, non-habitable structures should be designed as expendable structures (not withstanding erosion, scour, loads associated with the 100-year storm event) and be sited so that their failure does not adversely impact the beach-dune system or nearby major habitable structures. Generally, all vertical structures (walls, etc.) seaward of the CCCL must be frangible/breakaway (with maximum 5-foot-wide vertical sections), on-grade structures, such as concrete slabs, within the 100-year eroded profile may also be required to be of a breakaway design.

Marine Turtles

Impact Avoidance: Chapter 62B-33.005(4)(h), F.A.C., states: "The construction will not cause a significant adverse impact to marine turtles..." The existing dune located along the eastern edge of the site should serve to provide a buffer between marine turtle nesting habitat (i.e., sandy beach) and upland construction. Therefore, the Florida Fish and Wildlife Conservation Commission (FWC) should not consider any aspects of the proposed project to impose a threat "take" of protected/endangered marine turtle nesting habitat.

Exterior Lighting: In addition to any direct displacement of marine turtle nesting habitat, the FWC will evaluate and provide comments to the FDEP regarding proposed exterior lighting to reduce the likelihood that direct or ambient light will disorient nesting female or hatchling marine turtles on the beach adjacent to the site. Specific recommendations relative to light fixtures/bulbs and window tinting compliance can be made as project plans are developed. Local turtle protection and other lighting ordinances also restrict design parameters. **Please note that the FDEP CCCL program only has jurisdiction over lights seaward of the CCCL; however, under the FDEP Environmental Resource Permitting process, the FWC lighting requirements will apply to the entire site.**

Beach Protection and Nourishment

While the rate of sand loss was not determined under the scope of this study, Coastal Systems has determined that the beach adjacent to the site regularly experiences erosion. It is understood that the beach is a valuable amenity which the Town wishes to preserve, or otherwise augment.

To retain or increase the sand on the adjacent beach in lieu of a nourishment event, the Park has multiple options; these options range from in-water to on-land work. Any work (such as sand fences) or armoring structures implemented landward of the MHWL will only require State authorization from the FDEP. In contrast, any work or armoring structures (such as jetties or groins) seaward of the MHWL will require additional permitting from the U.S. Army Corps of Engineers and the associated Federal commenting agencies. The commenting agencies may include, but are not limited to, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

Federal authorization for the construction of in-water beach structures has been known to take several years, given the multiple and complex beach systems that may be impacted nearby and further south along the shoreline.

FLORIDA BUILDING CODE COASTAL CONSTRUCTION REGULATIONS

Chapter 31 §3109 of the 2018 Florida Building Code is entitled "Structures Seaward of a Coastal Construction Control Line". The purpose of this section is to ensure that habitable structures located entirely or partially seaward of the CCCL are designed to resist predicted 100-year return-period storm forces.

It is understood that no features proposed at the Park site contain living spaces. However, the proposed Little Red Schoolhouse Center and the Horizon Plateau with associated storage space may be subject to Chapter 31 §3109 if any uses fall outside of the definition of "Allowed Use". The following uses would be allowed within these structures, without making the structure "habitable": storage, small mechanical and electrical rooms, retail shops, snack bars, commercial grills with portable cooking equipment, bathrooms, and other uses "of a similar nature that are not spaces for living, sleeping, or cooking"; should the cooking equipment be permanent and be fixed to the structure floor, the structure would become "habitable."

Alternatively, Section 1612 addresses non-habitable structures sited within an AE Flood Zone and provides the appropriate reference for structure finished floor elevations, floodproofing, and foundation designs. **Ultimately, the criteria outlined below will be subject to the Town building official's review and interpretation.**

Section 3109 – Structures Seaward of a CCCL

Structure Floor Elevation

General Requirements: Section 3109.3.3 of the FBC requires habitable structures to be elevated such that the lowest horizontal structural supporting member is above the 100-year design storm

breaking wave crest elevation. Historically, under Chapter 62B-33, F.A.C., this requirement has been interpreted by the FDEP to apply only to habitable floors/levels of a structure; not non-habitable levels such as small mechanical rooms or storage. Habitable floors have historically been determined by the FDEP to be those containing a living unit, bedroom, or kitchen.

Site-Specific Habitable Elevation: The FBC 100-year storm elevation requirement is taken from the latest version of the FDEP report "One Hundred Year Storm Elevation Requirements for Habitable Structures Located Seaward of a CCCL." The 100-year storm elevation noted for the subject site (FDEP reference monuments R-118.5 through R-119.75) in the February 2002 update of this report is +15.4 feet NGVD (+13.9 feet NAVD).

Should the proposed designs seaward of the CCCL fall outside of the aforementioned allowed uses, then the Town may consider the proposed improvements to be habitable per Section 3109. Therefore, the finished floor elevations of the features may need to be raised to +15.4 feet NGVD.

Foundation Requirements for Structures

All habitable structures must be constructed on a pile foundation that is designed to withstand anticipated erosion, scour, and loads resulting from a predicted 100-year storm event. Structural calculations, including pile penetration, are to be based on the design grade elevation resulting from the 100-year storm, considering local scour. The FDEP-published design grade elevation in "One Hundred Year Storm Elevation Requirements for Habitable Structures Located Seaward of a CCCL" (1999, revised 2002) for the subject site is +5.0 feet NGVD (+3.5 feet NAVD). Pile caps must typically be set below the design grade and the ratio of pile (column) spacing to pile diameter must not be less than 8:1 for individual piles (columns) located above the design grade.

Alternatively, pile caps "shall be at or below the natural grade and below the design grade unless designed to resist increased flood loads associated with setting the grade beam or pile cap above the design grade". (Chapter 31 §3109.3.2.1, FBC).

Walls Below the 100-Year Storm Elevation

Requirements: Chapter 3109 of the FBC requires that no substantial walls or partitions be constructed below the level of the first finished floor of the structures (historically interpreted by the FDEP to mean below the 100-year storm wave crest elevation, which is +15.4 feet NGVD [+13.9 feet NAVD], as published by the FDEP).

As such, all shore-parallel walls below this elevation will need to be constructed as breakaway. Exceptions include stairways and stairwells; shear walls essentially perpendicular to the shoreline (breaking waves); shear-walls essentially parallel to breaking waves that do not exceed a maximum of 20% of the building width; and elevator shafts. Breakaway/frangible walls are not considered to be "substantial walls or partitions". Please note that the FDEP historically required only shore-parallel walls seaward of the CCCL to be frangible; however, it will be at the discretion of the Town as to whether or not shore-parallel walls landward of the CCCL will also need to be frangible. Compliance with the FBC 20% shear-wall requirement will be confirmed upon receipt of the structural plans for the project.

Hydraulic Analysis: The FBC allows for the submittal of a Hydraulic Analysis to the Town that is certified by a qualified coastal engineer that on a site- and structure-specific basis demonstrates that a structure meets the intent and technical requirements of the regulations with a specific configuration of additional non-breakaway elements above 20% of the shore-parallel building width. This is demonstrated by evaluating comparative forces acting on the subject and neighboring structures during a predicted 100-year storm event and determining whether or not a significant adverse impact to the beach-dune system or structures would be caused by the additional non-breakaway elements.

Breakaway Design: FDEP internal policies historically required that breakaway walls be designed to break into vertical sections 8 feet wide (maximum), with no structural steel connecting them to foundations/slabs at the top and bottom (anchors or other devices designed to fail under design storm conditions were permitted). Also, no structural steel was typically permitted between the vertical breakaway sections (greased doweling could be used if some lateral supports were required).

Flood Loads During a 100-Year Storm

Habitable Structures: Chapter 31 §3109.3 of the FBC outlines the requirements for design of major structures to 100-year storm erosion conditions and loads (wind, wave, hydrostatic, hydrodynamic, and uplift forces). Structural elements of habitable structures must withstand the design storm loads, while frangible or breakaway walls must be designed to fail under these loads.

Debris Impact Minimization: All structures must be designed to minimize the potential for wind and waterborne debris during a storm event (Chapter 31 §3109.3, FBC). Structures within the influence of the 100-year storm eroded profile and all non-structural elements of vertical buildings must generally be designed to break into 8-foot-by-5-foot maximum sections. Other structures and features such as tall landscape trees must be adequately anchored to prevent them from becoming missiles under storm conditions.

Section 1612 – Flood Loads

Non-Habitable Major and Minor Structures

Structural requirements for non-habitable major structures and minor structures are addressed in Section 161.55, F.S. (Requirements for Activities or Construction within the Coastal Building Zone). Non-habitable major structures and minor structures should be designed to produce the minimum adverse impact on the beach and dune system. Underground utilities should be floodproofed or otherwise designed to function when submerged.

Wet/Dry Floodproofing

Chapter 16 §1612.4 of the FBC addresses the design and construction of buildings and structures in Coastal A Zones and serves as a modification to ASCE 24. This section notes that dry floodproofing is allowed within Coastal A Zones, provided that "wave loads and the potential for erosion and local scour are accounted for in the design" (Section 1612.4.1(2)).

Appendix A

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SUMMARY AND CONCLUSIONS

All design provisions noted above should be addressed in the project plans and reviewed with Town staff for compliance with the applicable codes and regulations. The following actions are recommended prior to the submittal of design approval requests:

- Verify whether the structures seaward of the CCCL would be defined as habitable or would include the "Allowed Uses" described in Section 3109 of the Florida Building Code.
- Complete a preliminary set of plans (architectural, structural, landscape/hardscape, lighting, civil, etc.) in order to allow sufficient time for review and revisions prior to FDEP permit application submittal.
- Complete initial excavation/fill calculations from seaward of the CCCL based on schematic level foundation plans to confirm if the site can accommodate some of the material, or if it will need to be placed in the immediate beach and dune system.
- Schedule pre-application meetings with the FDEP and the Town (separately) to review the conceptual drawings, 30 Year Erosion Projection, and Line of Construction for compliance with applicable guidelines described above.

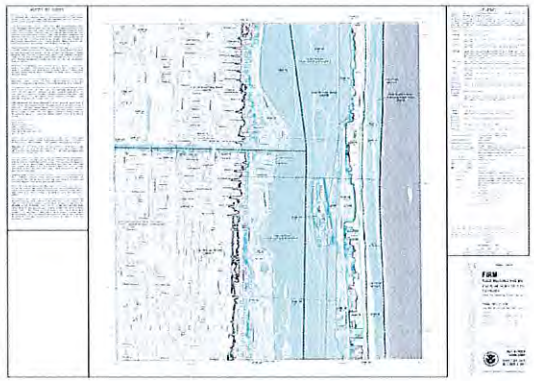
Thank you for the opportunity to review the Phipps Ocean Park Master Plan designs and the development opportunities relative to the CCCL and FBC criteria. Should you have any questions or require additional information, please do not hesitate to contact me at (305) 669-6230 or tscheuermann@coastalsystemsintl.com.

Sincerely,
COASTAL SYSTEMS INTERNATIONAL, INC.

Taylor C. Scheuermann
Manager - Environmental/Permitting & Resiliency

DB TS

Enclosures



Appendix B

Section 3109 Structures Seaward of a Coastal Construction Control Line

3109.1 General.
The provisions of this section shall apply to the design and construction of habitable structures and substantial improvement or repair of substantial damage of such structures, that are entirely seaward of, and portions of such structures that extend seaward of, the coastal construction control line or seaward of the 50 foot setback line, whichever is applicable. This section does not apply to structures that are not habitable structures, as defined in this section. Section 1612 shall apply to habitable structures and structures that are not habitable structures if located in whole or in part in special flood hazard areas established in Section 1612.3.

3109.1.1 Modification, Maintenance or Repair of Existing Habitable Structures.
The requirements of Section 3109 do not apply to the modification, maintenance or repair of existing habitable structures provided all of the following apply to the modification, maintenance or repair:

1. Is within the limits of the existing foundation.
2. Does not require, involve or include any additions to, or repair or modification of, the existing foundation.
3. Does not include any additions or enclosures added, constructed, or installed below the lowest floor or deck.

Advisory Note. If the modification or repair is determined to be substantial improvement or substantial damage, and if the building is located in a *special flood hazard area* (Zone A and Zone V) established in Section 1612.3, the requirements of *Florida Building Code, Existing Building* applicable to *flood hazard areas* shall apply.

3109.1.2 Approval Prior to Construction.
An environmental permit from the Florida Department of Environmental Protection is required prior to the start of construction. When issued, a copy of the environmental permit shall be submitted to the building official. The environmental permit may impose special siting considerations to protect the beach dune system, proposed or existing structures, and public beach access, and may condition the nature, timing and sequence of construction of permitted activities to provide protection to nesting sea turtles and hatchlings and their habitat, including submittal and approval of lighting plans.

3109.1.3 Elevation Certification.
As part of the permit process, upon placement of the lowest horizontal structural member of the lowest floor and prior to further vertical construction, certification of the elevation of the bottom of the lowest horizontal structural member of the lowest floor shall be submitted to the building official. Any work undertaken prior to submission of the certification or subsequent to submission and prior to the building official's review shall be at the applicant's risk.

3109.2 Definitions.
The following words and terms shall, for the purposes of this section, have the indicated meanings shown herein:
ALLOWED USE. For the purpose of Section 3109.3.4, uses of enclosures above, or with dry floodproofing to, the elevation specified in ASCE 24 and below the 100 year storm elevation, includes, but is not limited to: use for parking of vehicles, storage, building access, small mechanical and electrical rooms, retail shops, commercial pool bars and other bars, snack bars, commercial grills with portable cooking equipment, commercial dining areas where the permanent kitchen is located landward of the coastal construction control line or above the 100 year storm elevation, toilet rooms and bathrooms, cabanas, recreational spaces such as gyms and card rooms, commercial services/rental/pull-of-house facilities, and uses of a similar nature that are not spaces for living, sleeping or cooking.

COASTAL A ZONE. See Section 202.

COASTAL CONSTRUCTION CONTROL LINE. The line established by the State of Florida pursuant to Section 161.053, *Florida Statutes*, and recorded in the official records of the respective county and which defines that portion of the beach-dune system subject to severe fluctuations based on a 100 year storm surge, storm waves or other predictable weather conditions.

COASTAL HIGH HAZARD AREA. See Section 202.

COMBINED TOTAL STORM TIDE ELEVATION (VALUE). The elevation of combined total tides including storm surges, astronomical tide and dynamic wave setup which occurs primarily inside the wave breaking zone. The combined total storm tide elevations (values) for various return periods are determined by the Florida Department of Environmental Protection for each coastal county with an established coastal construction control lines and published in reports for each county titled "Revised Combined Total Storm Tide Frequency Analysis."

DESIGN GRADE. The prescribed elevation grade, accounting for erosion and localized scour resulting from the presence of structural components, used in the calculation of flood loads, pile reactions and bearing capacities. The design grade shall be determined by a site specific analysis prepared by a qualified registered design professional or the design grade may be determined by the Florida Department of Environmental Protection in the report titled "One Hundred Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999).

DRY FLOODPROOFING. See Section 202.

FIFTY FOOT SETBACK LINE. A line of jurisdiction, established pursuant to the provisions of Section 161.052, *Florida Statutes*, in which construction is prohibited within 50 feet (15.13 m) of the line of mean high water at any riparian coastal location fronting the Gulf of Mexico or the Atlantic coast shoreline.

FLOOD HAZARD AREA. See Section 202.

HABITABLE STRUCTURE. Structures designed primarily for human occupancy. Typically included within this category are residences, hotels and restaurants.

LOW-RISE BUILDING. A structure with mean roof height less than or equal to 60 feet.

LOWEST FLOOR. For the purpose of Section 3109, the lowest floor of the lowest enclosed area, excluding any enclosure that complies with the requirements and limitations of Section 3109.3.4 applicable to enclosures below the flood elevation.

LOWEST HORIZONTAL STRUCTURAL MEMBER. A horizontal structural member that supports floor, wall or column loads and transmits the loads to the foundation.

100-YEAR STORM ELEVATION. The height of the breaking wave crest or wave approach as superimposed on the storm surge with dynamic wave setup of a 100 year (one percent annual chance) storm. The 100 year storm elevation is determined by the Florida Department of Environmental Protection based on studies published as part of the Coastal Construction Control Line establishment process and an analysis of topographic and other site specific data and found in the report "One Hundred Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999). An applicant may request the Department of Environmental Protection to determine a site-specific 100 year storm elevation for the location of the applicant's proposed structure as part of the environmental permit application process.

SPECIAL FLOOD HAZARD AREA. See Section 202.

SUBSTANTIAL DAMAGE. See Section 202.

SUBSTANTIAL IMPROVEMENT. See Section 202.

3109.3 Design and Construction.
The design and construction of habitable structures, including substantial improvement and repair of substantial damage to such structures, shall be in accordance with this section and with Section 1612 and ASCE 24, as applicable. Habitable structures subject to this section shall be designed to minimize the potential for wind- and water-borne debris during storms.

Exception: Additions, repairs, and alterations that, when combined with all other work on a structure, do not constitute substantial improvement or repair of substantial damage, and provided all of the following apply:

a. The work does not violate the terms of previously issued permits.

b. Any addition does not advance the seaward limits of the existing structure.

3109.3.1 Flood Loads.
Flood loads shall be determined according to Chapter 5 of ASCE 7, where the stillwater depth shall be the difference between the design grade at the location and the higher of:

1. The stillwater elevation specified in the applicable Flood Insurance Study referenced to the datum on the Flood Insurance Rate Map, if the structure is sited in a *coastal high hazard area* (Zone V); or
2. The *combined total storm tide elevation* (value) for the 100 year return period identified by the Florida Department of Environmental Protection in reports titled "Revised Combined Total Storm Tide Frequency Analysis" prepared for each county with an established coastal construction control line.

3109.3.2 Foundations.
Habitable structures shall be elevated and supported on piles or columns that are designed to comply with this section. The space below elevated habitable structures shall be free of obstructions and walls, if any, shall comply with Section 3109.3.4. Foundations shall be designed to comply with ASCE 24 Section 4.5, except shallow foundations and stemwalls are not permitted.

3109.3.2.1 Piles and Columns.
In addition to the requirements of ASCE 24 Section 4.5 for pile and column foundations:

1. The design ratio of pile spacing to pile diameter, or column spacing to column diameter, shall be not less than 8:1 for individual piles or columns extending above the *design grade*, unless justified by a geotechnical analysis and the foundation design.
2. The tops of grade beams and pile caps shall be at or below the natural grade and below the *design grade* unless designed to resist increased flood loads associated with setting the grade beam or pile cap above the *design grade*.
3. Pile penetration shall take into consideration the anticipated loss of soil above the *design grade*.

3109.3.2.2 Shear Walls.
Shear walls shall comply with one of the following:

1. Shear walls are permitted perpendicular to the shoreline where perpendicular shall mean less than or equal to ±20 degrees from a line drawn normal to the shoreline.
2. Shear walls not perpendicular to the shoreline shall be limited to a maximum of 20 percent of the building length in the direction running parallel to the shore, and wall segments, spacing between wall segments, and elevator shafts shall be located and positioned to allow floodwater to flow easily around the walls and elevator shafts.

Exception: Habitable structures other than low-rise buildings are permitted to have shear walls that are not perpendicular to the shoreline and that exceed 20 percent of the total building length provided the design requires a length greater than 20 percent, wall segments, spacing between wall segments, and elevator shafts are located and positioned to allow floodwater to flow easily around the walls and elevator shafts, and the following design documentation is submitted:

a. A hydraulic analysis conducted and certified by a Florida registered professional engineer qualified to evaluate the potential impact of flow increase on the subject parcel and adjacent properties and demonstrates the increased shear wall length will not result in substantial increase of flow velocities and drag forces on the structural components of the proposed structure and neighboring structures.

b. The certified design documentation shall include a statement that the increased length of shear walls over 20 percent of total building length is located landward of the predicted 100 year storm erosion limit.

3109.3.3 Elevation Standards.
The bottom of the lowest horizontal structural member of the lowest floor shall be at or above the higher of the following:

1. The elevation specified in ASCE 24 Chapter 4 if the structure is in a *coastal high hazard area* or *Coastal A Zone*.
2. The elevation specified by the jurisdiction; or
3. The 100 year storm elevation determined by the Florida Department of Environmental Protection in the report titled "One Hundred Year Storm Elevation Requirements for Habitable Structures Located Seaward of a Coastal Construction Control Line" (1999). An applicant may request determination of a site specific 100 year storm elevation (see definition).

3109.3.4 Walls and Enclosures Below the Flood Elevation.
Walls and enclosures below the elevation required by Section 3109.3.3 and above the *design grade* elevation shall comply with all of the following, as applicable:

1. Walls seaward of the CCCL shall comply with the breakaway wall requirements of ASCE 24 Section 4.6 using the lesser of the Flood loads specified by Section 3109.3.1.
2. Elevator shafts and stairways shall comply with ASCE 24.
3. For nonresidential buildings located outside of a *coastal high hazard area* (Zone V):
   a. Small mechanical and electrical rooms with *dry floodproofing* to the elevation specified in ASCE 24 or by the jurisdiction are not required to be breakaway.
   b. Stairwells are not required to be breakaway provided the walls have flood openings in accordance with this section.
4. In *special flood hazard areas* (Zone V and Zone A), all breakaway walls below the elevation specified in ASCE 24 or the elevation specified by the jurisdiction shall have flood openings in accordance with ASCE 24 Section 4.6.2. Flood openings are not required in:
   a. Shear walls designed in accordance with Section 3109.3.2.2.
   b. Walls of enclosures below buildings not located in *special flood hazard areas* (Zone X).
   c. Walls that are designed and constructed in conformance with the *dry floodproofing* requirements of ASCE 24 in areas other than *coastal high hazard areas*.
5. In *special flood hazard areas* (Zone V and Zone A):
   a. Enclosures below the elevation specified in ASCE 24 or the elevation specified by the jurisdiction shall be used solely for parking of vehicles, building access, or storage unless enclosures are designed and constructed in accordance with the *dry floodproofing* requirements of ASCE 24.
   b. Enclosures above the elevation specified in ASCE 24 or by the jurisdiction and below the 100 year storm elevation, or enclosures with *dry floodproofing* to the elevation specified in ASCE 24 or by the jurisdiction, shall be limited to allowed use as defined in this section.
6. In habitable structures not located in *special flood hazard areas* (Zone X), uses of enclosures below the 100 year storm elevation shall be limited to allowed use as defined in this section.

3109.3.5 Structural Slabs Below the 100 Year Storm Elevation.
Structural slabs below the 100 year storm elevation and below the lowest floor are not required to be breakaway provided the slabs are designed by a qualified Florida registered professional engineer to withstand the flood loads specified by Section 3109.3.1.

3109.4 Documentation.
In addition to documentation specified in Section 1612.5, where applicable the following documentation shall be prepared, signed, and sealed by a qualified Florida registered professional engineer and submitted to the building official:

1. For site specific determination of *design grade*, a report of the assumptions and methods used.
2. For shear walls, the certifications required in Section 3109.3.2.

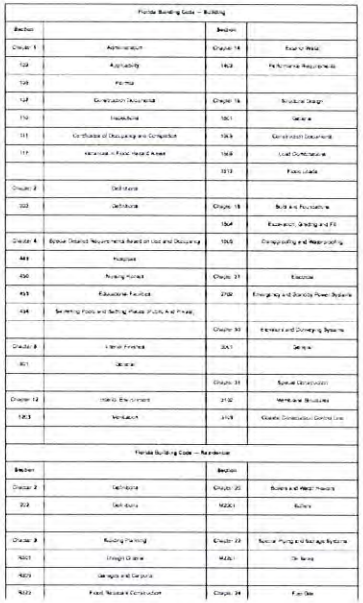
Appendix C

Section 1612 Flood Loads

1612.1 General.
Within *flood hazard areas* as established in Section 1612.3, all new construction of buildings, structures and portions of buildings and structures, including substantial improvement and restoration of substantial damage to buildings and structures, shall be designed and constructed to resist the effects of flood hazards and flood loads. For buildings that are located in more than one *flood hazard area*, the provisions associated with the most restrictive *flood hazard area* shall apply.

TABLE 1612.1

CROSS REFERENCES DEFINING FLOOD-RESISTANT PROVISIONS OF THE FLORIDA BUILDING CODE



Florida Building Code — Building

Section		Section	
Chapter 1	Administration	Chapter 14	Roof to Wall
102	Applicability	1609	Performance Requirements
105	Permits		
107	Construction Documents	Chapter 16	Structural Design
110	Inspections	1801	General
111	Certificate of Occupancy and Completion	1803	Construction Documents
112	Variances in Flood Hazard Areas	1808	Load Combinations
		1810	Foundations
Chapter 2	Definitions		
202	Definitions	Chapter 18	Soils and Foundations
		1804	Excavation, Grading and Fill
Chapter 4	Special Detached Requirements based on Use and Occupancy	1805	Dampproofing and Waterproofing
403	Hospitals		
406	Parking Garages	Chapter 27	Electrical
423	Storm Shelters	2702	Emergency and Standby Power Systems
424	Swimming Pools and Bathing Places (Public and Private)		
		Chapter 30	Elevators and Conveying Systems
Chapter 3	Use and Occupancy Classification	3001	General
301	General		
		Chapter 31	Special Construction
Chapter 12	Interior Environment	3102	Membrane Structures
1203	Ventilation	3109	Swimming Pool Enclosures and Safety Devices

Florida Building Code — Residential

Section		Section	
Chapter 2	Definitions	Chapter 20	Aluminum Wall Panels
202	Definitions	R2001	General
Chapter 3	Building Planning	Chapter 22	Special Piping and Storage Systems
R301	Design Criteria	R2201	Oil Tanks
	Delegated Design		
R322	Flood Resistant Construction	Chapter 24	Fuel Gas

		Chapter 25	General
Chapter 4	Foundations		
R401	General	Chapter 26	General Plumbing Requirements
R404	Foundation and Retaining Walls	P2601	General
R408	Under-Floor Space		
		Chapter 27	Plumbing Fixtures
Chapter 13	General Mechanical System Requirements	P2703	Installation
M1301	General		
		Chapter 30	Sanitary Drainage
Chapter 14	Heating and Cooling Equipment	P3001	General
M1401	General		
		Chapter 31	Vents
Chapter 16	Duct Systems	P3103	Vent Systems
M1601	Duct Construction		
Chapter 17	Combustion Air	Chapter 46	Private Swimming Pools
M1701	General	R4601	General

Florida Building Code — Existing Building

Section		Section	
Chapter 2	Definitions	Chapter 7	Alterations — Level 1
202	Definitions	701	General
Chapter 3	Compliance Methods	Chapter 11	Additions
301.1	General	1101	Structure
Chapter 4	Repairs	Chapter 12	Historic Buildings
401	General	1201	General
404	Structure		
		Chapter 13	Relocated or Moved Buildings
Chapter 5	Prescriptive Compliance Method	1401	Requirements
503	Additions		
505	Alterations	Chapter 14	Performance Compliance Methods
		1401	General

Florida Building Code — Mechanical

Section		Section	
Chapter 1	General Regulations	Chapter 6	Duct Systems
M101	General	M602	Materials
		M603	Duct Construction and Installation
Chapter 4	Ventilation		
M401	General	Chapter 12	Hydronic Piping
		M1208	Piping Installation
Chapter 5	Exhaust Systems		
M501	General	Chapter 13	Fuel Oil Piping and Storage
		M1305	Fuel Oil System Installation

Florida Building Code — Plumbing

Section			
Chapter 1	General Regulations		
P539	Flood Hazard Resistance		

Florida Building Code — Fuel Gas

Section			
Chapter 1	General Regulations		
G2401	General		

1612.1.1 Cross References
See Table 1612.1.

1612.2 Definitions
The following terms are defined in Chapter 2:

BASE FLOOD

BASE FLOOD ELEVATION

BASEMENT

COASTAL A ZONE

COASTAL HIGH HAZARD AREA

DESIGN FLOOD

DESIGN FLOOD ELEVATION

DRY FLOODPROOFING

EXISTING STRUCTURE

FLOOD or FLOODING

FLOOD DAMAGE-RESISTANT MATERIALS

FLOOD HAZARD AREA

FLOOD INSURANCE RATE MAP (FIRM)

FLOOD INSURANCE STUDY

FLOODWAY

LOWEST FLOOR

SPECIAL FLOOD HAZARD AREA

START OF CONSTRUCTION

SUBSTANTIAL DAMAGE

SUBSTANTIAL IMPROVEMENT

1612.3 Establishment of Flood Hazard Areas
To establish flood hazard areas, the applicable governing authority shall, by local flood plain management ordinance, adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency.

1612.3.1 Design Flood Elevations
Where design flood elevations are not included in the flood hazard areas established in Section 1612.3, or where floodways are not designated, the building official is authorized to require the applicant to:

1. Obtain and reasonably utilize any design flood elevation and floodway data available from a federal, state or other source; or

2. Determine the design flood elevation and/or floodway in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall document that the technical methods used reflect currently accepted engineering practice.

1612.3.2 Determination of Impacts
In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed work will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction of the applicable governing authority.

1612.4 Design and Construction
The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas and Coastal A Zones, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.

1612.4.1 Modification of ASCE 24
Table 6-1 and Section 6.2.1 of ASCE 24 shall be modified as follows:

1. The title of Table 6-1 shall be "Minimum Elevation of Floodproofing, Relative to Base Flood Elevation (BFE) or Design Flood Elevation (DFE), in Coastal A Zones and in Other Flood Hazard Areas that are not High Risk Flood Hazard Areas."

2. Section 6.2.1 shall be modified to permit dry floodproofing in Coastal A Zones as follows: "Dry floodproofing of nonresidential structures and nonresidential areas of mixed-use structures shall not be allowed unless such structures are located outside of High Risk Flood Hazard areas and Coastal High Hazard Areas. Dry floodproofing shall be permitted in Coastal A Zones provided wave loads and the potential for erosion and local scour are accounted for in the design. Dry floodproofing of residential structures or residential areas of mixed-use structures shall not be permitted."

1612.4.2 Modification of ASCE 24 § 8 Pools
Modify Section 8.6 in ASCE 24 by adding an exception as follows:

§ 8 Pools. In ground and above ground pools shall be designed to withstand all flood related loads and load combinations. Mechanical equipment for pools such as pumps, heating systems and filtering systems, and their associated electrical systems, shall comply with Chapter 7.

Exception: Equipment for pools, spas and water features shall be permitted below the elevation required in Table 7-1, provided it is elevated to the extent practical, is anchored to prevent flotation and resist flood forces, and is supplied by branch circuits that have ground-fault circuit-interrupter protection.

1612.5 Flood Hazard Documentation
The following documentation shall be prepared and sealed by a registered design professional and submitted to the building official:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:

1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.

2. For construction in coastal high hazard areas and coastal A zones:

2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16 of 3. For breakaway walls designed to have a resistance of more than 20 psf (0.95 kN/m²) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

Appendix D

Select Year: 2020 Go

The 2020 Florida Statutes

Title XI
COUNTY ORGANIZATION AND INTERGOVERNMENTAL RELATIONS

Chapter 161
BEACH AND SHORE PRESERVATION

View Entire Chapter

161.55 Requirements for activities or construction within the coastal building zone.—The following requirements shall apply beginning March 1, 1986, to construction within the coastal building zone and shall be minimum standards for construction in this area:

(1) **REGULATION OF COASTAL MINOR STRUCTURES.**—Minor structures shall be designed to produce the minimum adverse impact on the beach and the dune system and adjacent properties and to reduce the potential for water or wind blown material. Construction of a rigid coastal or shore protection structure designed primarily to protect a minor structure shall not be permitted.

(2) **REGULATION OF COASTAL NONHABITABLE MAJOR STRUCTURES.**—Nonhabitable major structures shall be designed to produce the minimum adverse impact on the beach and dune system. All sewage treatment plants and public water supply systems shall be flood proofed to prevent infiltration of surface water from a 100-year storm event. Underground utilities, excluding pad transformers and vaults, shall be flood proofed to prevent infiltration of surface water from a 100-year storm event or shall otherwise be designed so as to function when submerged by such storm event.

(3) **LOCATION OF CONSTRUCTION.**—Construction, except for elevated walkways, lifeguard support stands, piers, beach access ramps, gazebos, and coastal or shore protection structures, shall be located a sufficient distance landward of the beach to permit natural shoreline fluctuations and to preserve dune stability.

(4) **APPLICATION TO COASTAL BARRIER ISLANDS.**—All requirements of this part which are applicable to the coastal building zone shall also apply to coastal barrier islands. The coastal building zone on coastal barrier islands shall be the land area from the seasonal high-water line to a line 5,000 feet landward from the coastal construction control line established pursuant to s. 161.053, or the entire island, whichever is less. For coastal barrier islands on which a coastal construction control line has not been established pursuant to s. 161.053, the coastal building zone shall be the land area seaward of the most landward velocity zone (V-zone) boundary line fronting upon the Gulf of Mexico, Atlantic Ocean, Florida Bay, or Straits of Florida. All land area in the Florida Keys located within Monroe County shall be included in the coastal building zone. The coastal building zone on any coastal barrier island between Sebastian Inlet and Fort Pierce Inlet may be reduced in size upon approval of the Land and Water Adjudicatory Commission, if it determines that the local government with jurisdiction has provided adequate protection for the barrier island. In no case, however, shall the coastal building zone be reduced to an area less than a line 2,500 feet landward of the coastal construction control line. The Land and Water Adjudicatory Commission shall withdraw its approval for a reduced coastal building zone if it determines that 6 months after a local government comprehensive plan is due for submission to the state land planning agency pursuant to s. 163.3167 the local government with jurisdiction has not adopted a coastal management element which is in compliance with s. 163.3178.

(5) **PUBLIC ACCESS.**—Where the public has established an accessway through private lands to lands seaward of the mean high tide or water line by prescription, prescriptive easement, or any other legal means, development or construction shall not interfere with such right of public access unless a comparable alternative accessway is provided. The developer shall have the right to improve, consolidate, or relocate such public accessways so long as the accessways provided by the developer are:

(a) Of substantially similar quality and convenience to the public;
(b) Approved by the local government;
(c) Approved by the department whenever improvements are involved seaward of the coastal construction control line; and
(d) Consistent with the coastal management element of the local comprehensive plan adopted pursuant to s. 163.3178.

History.—s. 36, ch. 85-55; s. 3, ch. 86-191; s. 8, ch. 2000-141; s. 34, ch. 2001-186; s. 3, ch. 2001-372.

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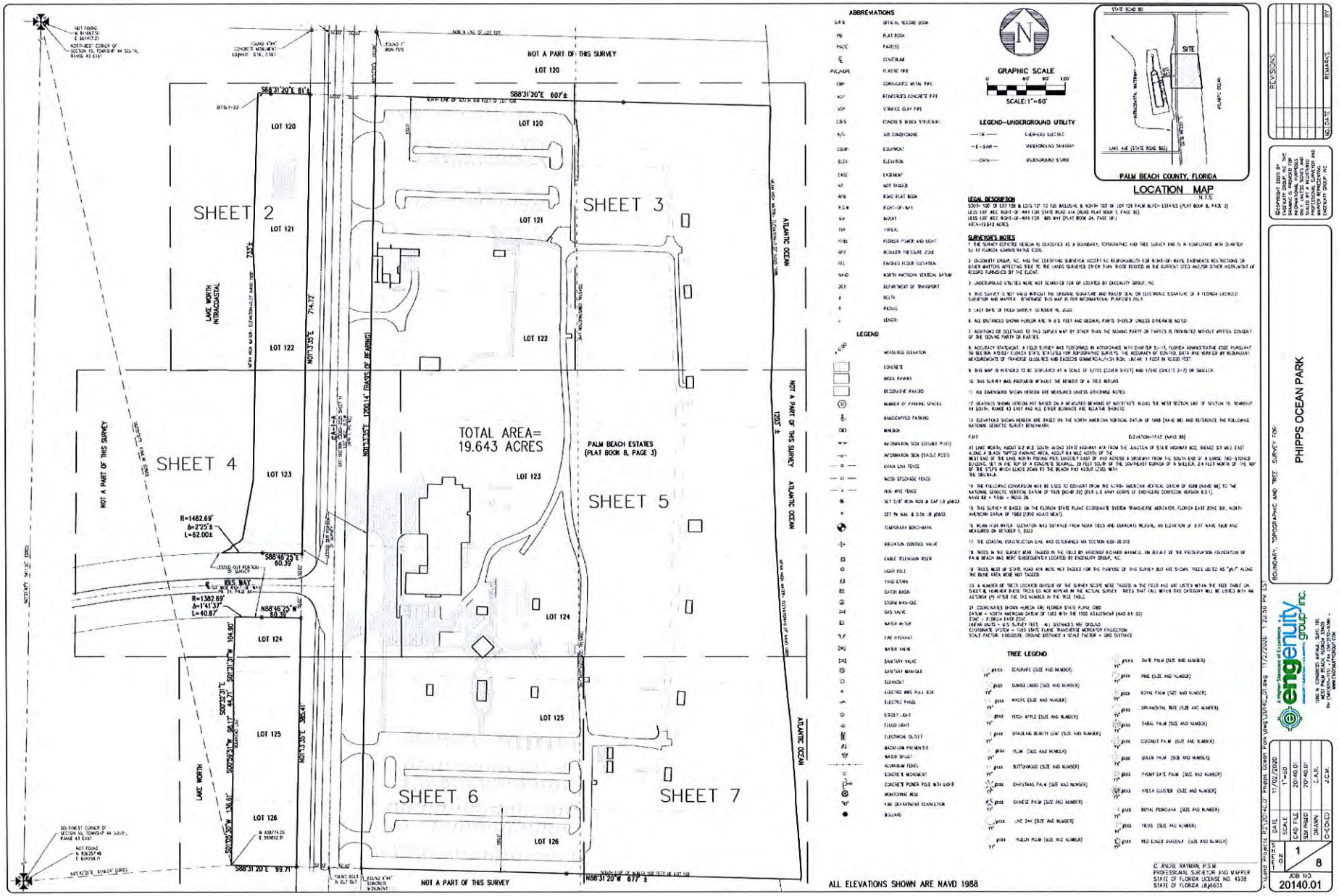

ABBREVIATIONS

ORB	OFFICIAL RECORD BOOK
PB	PLAT BOOK
PG(S)	PAGE(S)
℄	CENTERLINE
PVC/HDPE	PLASTIC PIPE
CMP	CORRUGATED METAL PIPE
RCP	REINFORCED CONCRETE PIPE
VCP	VITRIFIED CLAY PIPE
CBS	CONCRETE BLOCK STRUCTURE
A/C	AIR CONDITIONING
EQUIP	EQUIPMENT
ELEV	ELEVATION
EASE	EASEMENT
NT	NOT TAGGED
RPB	ROAD PLAT BOOK
R/W	RIGHT-OF-WAY
Δ/A	ANGLE
TYP	TYPICAL
FPBS	FLORIDA POWER AND LIGHT
BPZ	BUBBLER PRESSURE ZONE
FFE	FINISHED FLOOR ELEVATION
NAVD	NORTH AMERICAN VERTICAL DATUM
DOT	DEPARTMENT OF TRANSPORT
Δ	DELTA
R	RADIUS
L	LENGTH

LEGEND

- MEASURED ELEVATION
- CONCRETE
- BRICK PAVERS
- DECORATIVE PAVERS
- NUMBER OF PARKING SPACES
- HANDICAPPED PARKING
- MAILBOX
- INFORMATION SIGN (DOUBLE POST)
- INFORMATION SIGN (SINGLE POST)
- CHAIN LINK FENCE
- WOOD STOCKADE FENCE
- HOG WIRE FENCE
- SET 5/8" IRON ROD & CAP LB #6633
- SET PK NAIL & DISK LB #6633
- TEMPORARY BENCHMARK
- IRRIGATION CONTROL VALVE
- CABLE TELEVISION RISER
- LIGHT POLE
- YARD DRAIN
- CATCH BASIN
- STORM MANHOLE
- GAS VALVE
- WATER METER
- FIRE HYDRANT
- WATER VALVE
- SANITARY VALVE
- SANITARY MANHOLE
- CLEANOUT
- ELECTRIC AND P.I.U. BOX
- ELECTRIC PANEL
- STREET LIGHT
- FLOOD LIGHT
- ELECTRICAL OUTLET
- BACKFLOW PREVENTER
- WATER SPIGOT
- ALUMINUM FENCE
- CONCRETE MONUMENT
- CONCRETE POWER POLE WITH GUY
- MONITORING WELL
- FIRE DEPARTMENT CONNECTION
- BOLLARD

GRAPHIC SCALE
0 60' 90' 120'
SCALE: 1"=60'

LEGEND–UNDERGROUND UTILITY

- —OE— OVERHEAD ELECTRIC
- —E-SAN— UNDERGROUND SANITARY
- —DRN— UNDERGROUND STORM

LOCATION MAP
N.T.S.

LEGAL DESCRIPTION

SOUTH 100' OF LOT 120 & LOTS 121 TO 126 INCLUSIVE & NORTH 100' OF LOT 126 PALM BEACH ESTATES (PLAT BOOK 8, PAGE 3)
LESS 60' WIDE RIGHT-OF-WAY FOR STATE ROAD A1A (RUNS PLAT BOOK 1, PAGE 30)
LESS 60' WIDE RIGHT-OF-WAY FOR 6th WAY (PLAT BOOK 24, PAGE 181)
AREA=19.643 ACRES

SURVEYOR'S NOTES

1. THE SURVEY DEPICTED HEREON IS CLASSIFIED AS A BOUNDARY, TOPOGRAPHIC AND TREE SURVEY AND IS IN CONFORMANCE WITH CHAPTER 5J-17 FLORIDA ADMINISTRATIVE CODE.
2. ENDURANCE GROUP, INC. AND THE CERTIFYING SURVEYOR ACCEPT NO RESPONSIBILITY FOR RIGHT-OF-WAYS, EASEMENTS, RESTRICTIONS OR OTHER MATTERS AFFECTING TITLE TO THE LANDS SURVEYED OTHER THAN THOSE PLOTTED IN THE CURRENT TITLE AND/OR OTHER INSTRUMENT OF RECORD FURNISHED BY THE CLIENT.
3. UNDERGROUND UTILITIES WERE NOT SEARCHED FOR OR LOCATED BY ENDURANCE GROUP, INC.
4. THIS SURVEY IS NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND RAISED SEAL OR ELECTRONIC SIGNATURE OF A FLORIDA LICENSED SURVEYOR AND MAPPER. OTHERWISE, THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY.
5. LAST DATE OF FIELD SURVEY: OCTOBER 16, 2020
6. ALL DISTANCES SHOWN HEREON ARE IN U.S. FEET AND DECIMAL PARTS THEREOF UNLESS OTHERWISE NOTED.
7. ADDITIONS OR DELETIONS TO THIS SURVEY MAP BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
8. ACCURACY STATEMENT: A FIELD SURVEY WAS PERFORMED IN ACCORDANCE WITH CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE PURSUANT TO SECTION 472.027, FLORIDA STATE STATUTES FOR REPORTABLE SURVEYS. THE ACCURACY OF CONTROL DATA WAS VERIFIED BY REDUNDANT MEASUREMENTS OF FRAMEWORK OBSERVATIONS AND EXCEEDS COMMERCIAL/HIGH RISK (1 FOOT IN 10,000 FEET).
9. THIS MAP IS INTENDED TO BE DISPLAYED AT A SCALE OF 1"=20' (COVER SHEET) AND 1"=40' (SHEETS 2-7) OR SMALLER.
10. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.
11. ALL DIMENSIONS SHOWN HEREON ARE MEASURED UNLESS OTHERWISE NOTED.
12. BEARINGS SHOWN HEREON ARE BASED ON A MEASURED BEARING OF NORTH 01°13'55" EAST ALONG THE WEST SECTION LINE OF SECTION 15, TOWNSHIP 44 SOUTH, RANGE 43 EAST AND ALL OTHER BEARINGS ARE RELATIVE THERETO.
13. ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND REFERENCE THE FOLLOWING NATIONAL GEODETIC SURVEY BENCHMARK:

P317 ELEVATION=17.67 (NAVD 88)

AT LAKE WORTH, ABOUT 0.2 MILE SOUTH ALONG STATE HIGHWAY A1A FROM THE JUNCTION OF STATE HIGHWAY 802, BRIDGE 93 MILE EAST ALONG A BLACK TOPPED PARKING AREA, ABOUT 89 MILE NORTH OF 7A, MONUMENT AT THE LAKE WORTH PIER AND PIER PARK, DIRECTLY EAST OF AND ACROSS A DRIVEWAY FROM THE SOUTH END OF A LARGE TWO-STORIED BUILDING, SET IN THE TOP OF A CONCRETE SEAWALL, 29 FEET SOUTH OF THE SOUTHEAST CORNER OF A SHELTER, 24 FEET NORTH OF THE TOP OF THE STEPS WHICH LEADS DOWN TO THE BEACH AND ACROSS LEVEL WITH THE SIDEWALK.

14. THE FOLLOWING CONVERSION MAY BE USED TO CONVERT FROM THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) [PER U.S ARMY CORPS OF ENGINEERS CONVERSION VERSION 6.0.1]:
NAVD 88 + 1.06 = NGVD 29.
15. THIS SURVEY IS BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM TRANSVERSE MERCATOR, FLORIDA EAST ZONE 901, NORTH AMERICAN DATUM OF 1983 (1990 ADJUSTMENT).
16. MEAN HIGH WATER ELEVATION WAS OBTAINED FROM NOAA TIDES AND CURRENTS MLH/MHW AN ELEVATION OF 0.37' NAVD 1988 AND MEASURED ON OCTOBER 1, 2020
17. THE COASTAL CONSTRUCTION LINE WAS DETERMINED VIA SECTION 62B-36.010
18. TREES IN THE SURVEY WERE TAGGED IN THE FIELD BY ARBORIST RICHARD MAHMEL, ON BEHALF OF THE PRESERVATION FOUNDATION OF PALM BEACH AND WERE SUBSEQUENTLY LOCATED BY ENDURANCE GROUP, INC.
19. TREES WEST OF STATE ROAD A1A WERE NOT TAGGED FOR THE PURPOSE OF THIS SURVEY BUT ARE SHOWN. TREES LISTED AS "(NT)" ALONG THE DUNE AREA WERE NOT TAGGED.
20. A NUMBER OF TREES LOCATED OUTSIDE OF THE SURVEY SCOPE WERE TAGGED IN THE FIELD AND ARE LISTED WITHIN THE TREE TABLE ON SHEET 8, HOWEVER THESE TREES DO NOT APPEAR IN THE ACTUAL SURVEY. TREES THAT FALL WITHIN THIS CATEGORY WILL BE LISTED WITH AN ASTERISK (*) AFTER THE TAG NUMBER IN THE TREE TABLE.
21. COORDINATES SHOWN HEREON ARE: FLORIDA STATE PLANE GRID
DATUM = NORTH AMERICAN DATUM OF 1983 WITH THE 1990 ADJUSTMENT (NAD 83 90)
ZONE = FLORIDA EAST ZONE
LINEAR UNITS = U.S. SURVEY FEET. ALL DISTANCES ARE GROUND
COORDINATE SYSTEM = 1983 STATE PLANE TRANSVERSE MERCATOR PROJECTION
SCALE FACTOR: 1.0000839, GROUND DISTANCE X SCALE FACTOR = GRID DISTANCE

TREE LEGEND

- ##" SCHEFFLERA (SIZE AND NUMBER)
- ##" GUMBO LIMBO (SIZE AND NUMBER)
- ##" MYRTLE (SIZE AND NUMBER)
- ##" PITCH APPLE (SIZE AND NUMBER)
- ##" BRAZILIAN BEAUTY LEAF (SIZE AND NUMBER)
- ##" PLUM (SIZE AND NUMBER)
- ##" BUTTONWOOD (SIZE AND NUMBER)
- ##" CHRISTMAS PALM (SIZE AND NUMBER)
- ##" CHINESE PALM (SIZE AND NUMBER)
- ##" LIVE OAK (SIZE AND NUMBER)
- ##" FALSE PALM (SIZE AND NUMBER)
- ##" DATE PALM (SIZE AND NUMBER)
- ##" PINE (SIZE AND NUMBER)
- ##" ROYAL PALM (SIZE AND NUMBER)
- ##" ORNAMENTAL TREE (SIZE AND NUMBER)
- ##" TABAL PALM (SIZE AND NUMBER)
- ##" COCONUT PALM (SIZE AND NUMBER)
- ##" QUEEN PALM (SIZE AND NUMBER)
- ##" PYGMY DATE PALM (SIZE AND NUMBER)
- ##" ARECA CLUSTER (SIZE AND NUMBER)
- ##" ROYAL POINCIANA (SIZE AND NUMBER)
- ##" PALM (SIZE AND NUMBER)
- ##" RED LEAVED DRACENA (SIZE AND NUMBER)

C. ANDRE RAYMAN, P.S.M.
PROFESSIONAL SURVEYOR AND MAPPER
STATE OF FLORIDA LICENSE NO. 4938
STATE OF FLORIDA LB#6633

REVISIONS			
NO.	DATE	REMARKS	BY

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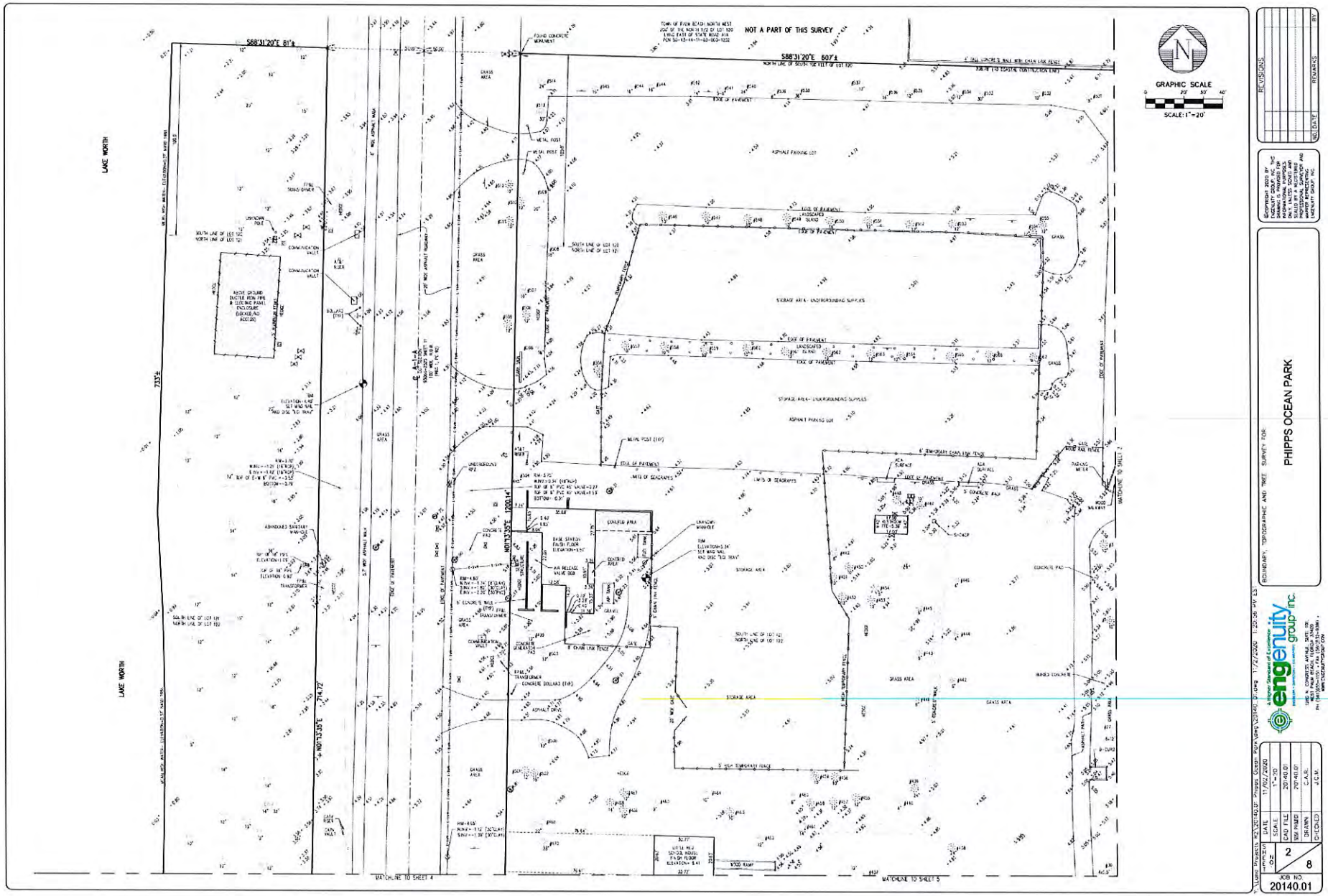
BOUNDARY, TOPOGRAPHIC AND TREE SURVEY FOR:

PHIPPS OCEAN PARK

A Wilbur Smith Associates Company of Excellence
engenuity group inc.
1200 N. CONGRESS AVENUE, SUITE 105
WEST PALM BEACH, FLORIDA 33409
PH: (561)615-1551 / FAX: (561)615-1559
WWW.ENGENUITYGROUP.COM

DATE	11/02/2020
SCALE	1"=60'
CAD FILE	20140.01
SURVEY	C.A.R.
DRAWN	J.C.M.
CHECKED	
SHEET	1 OF 8
JOB NO.	20140.01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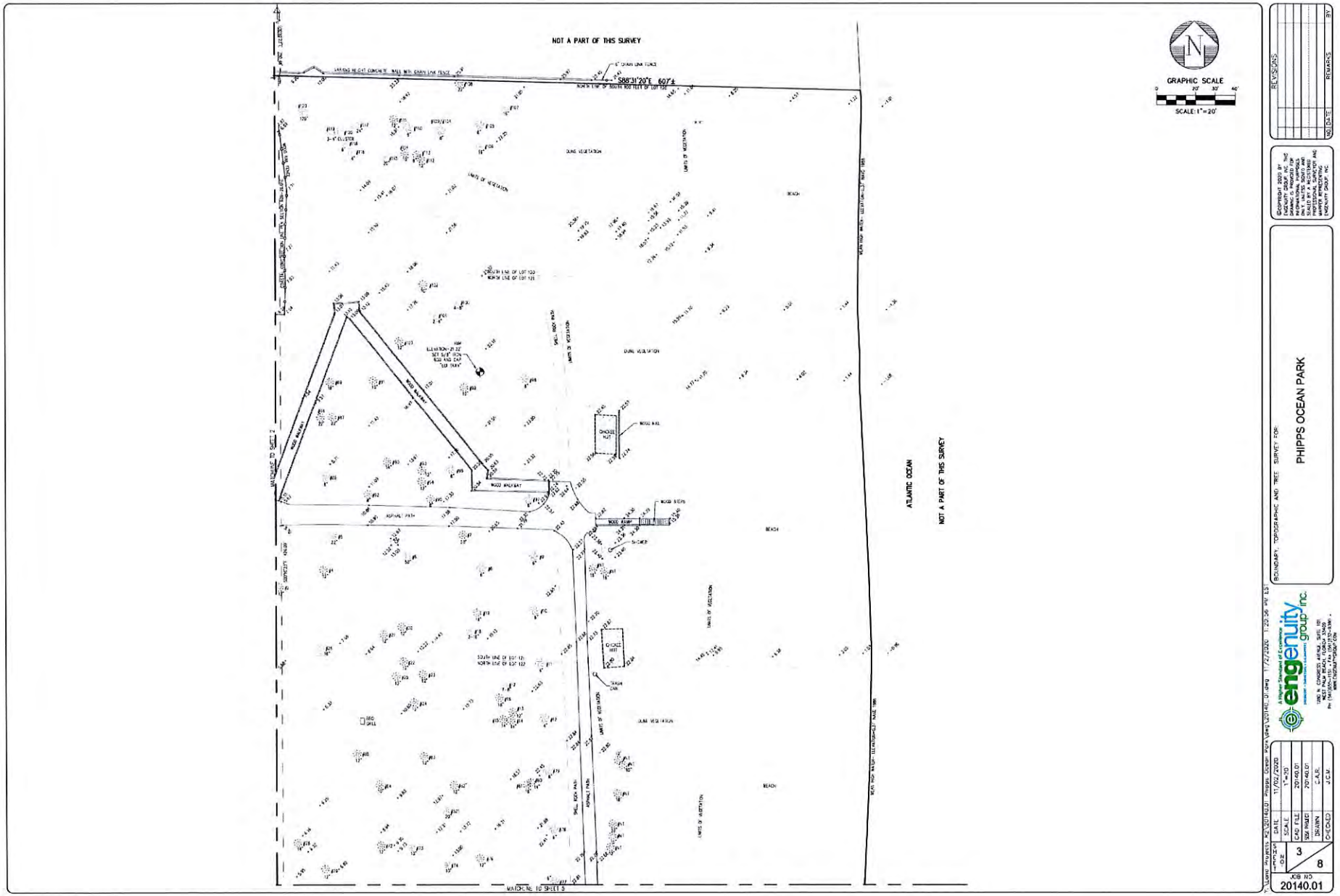
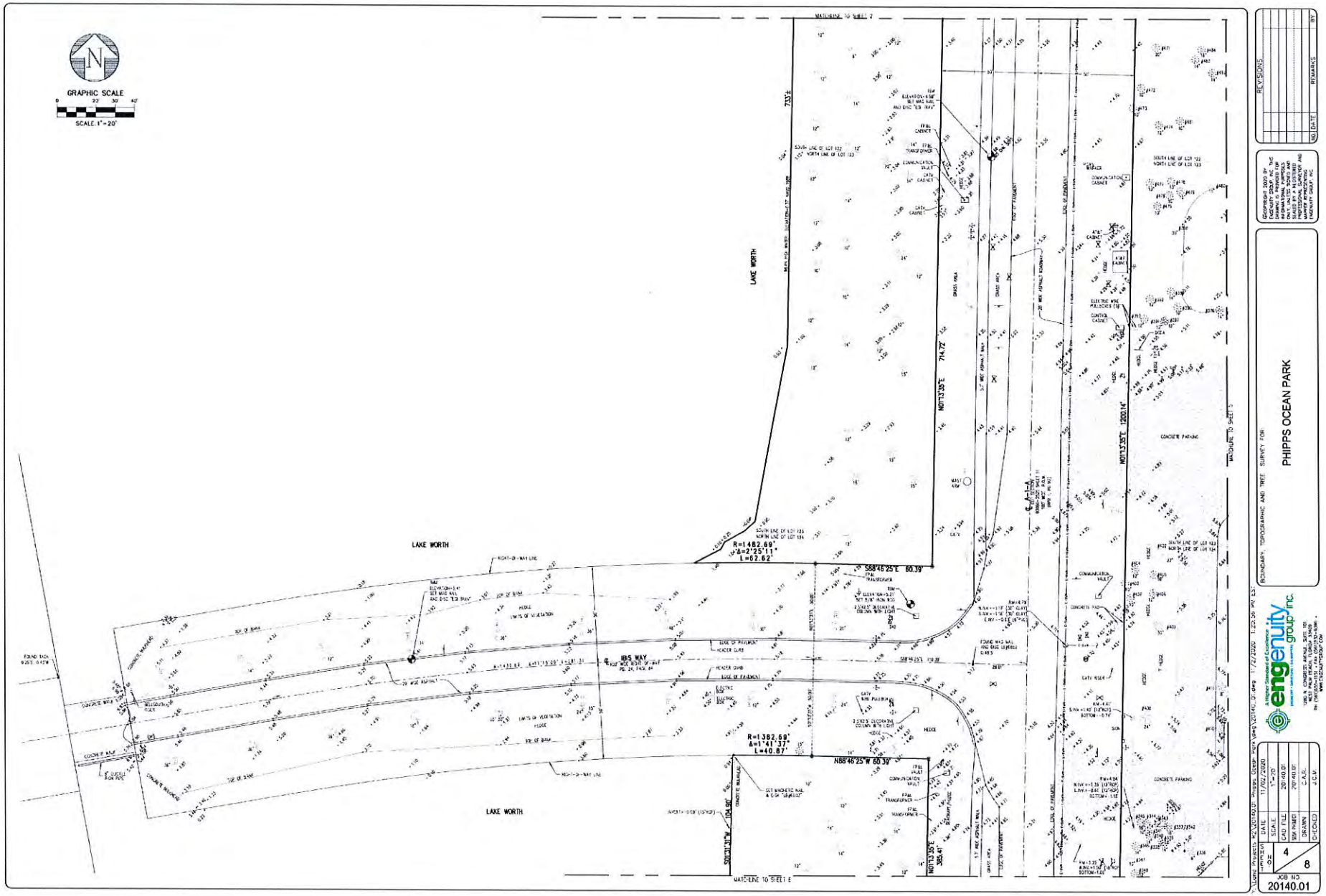
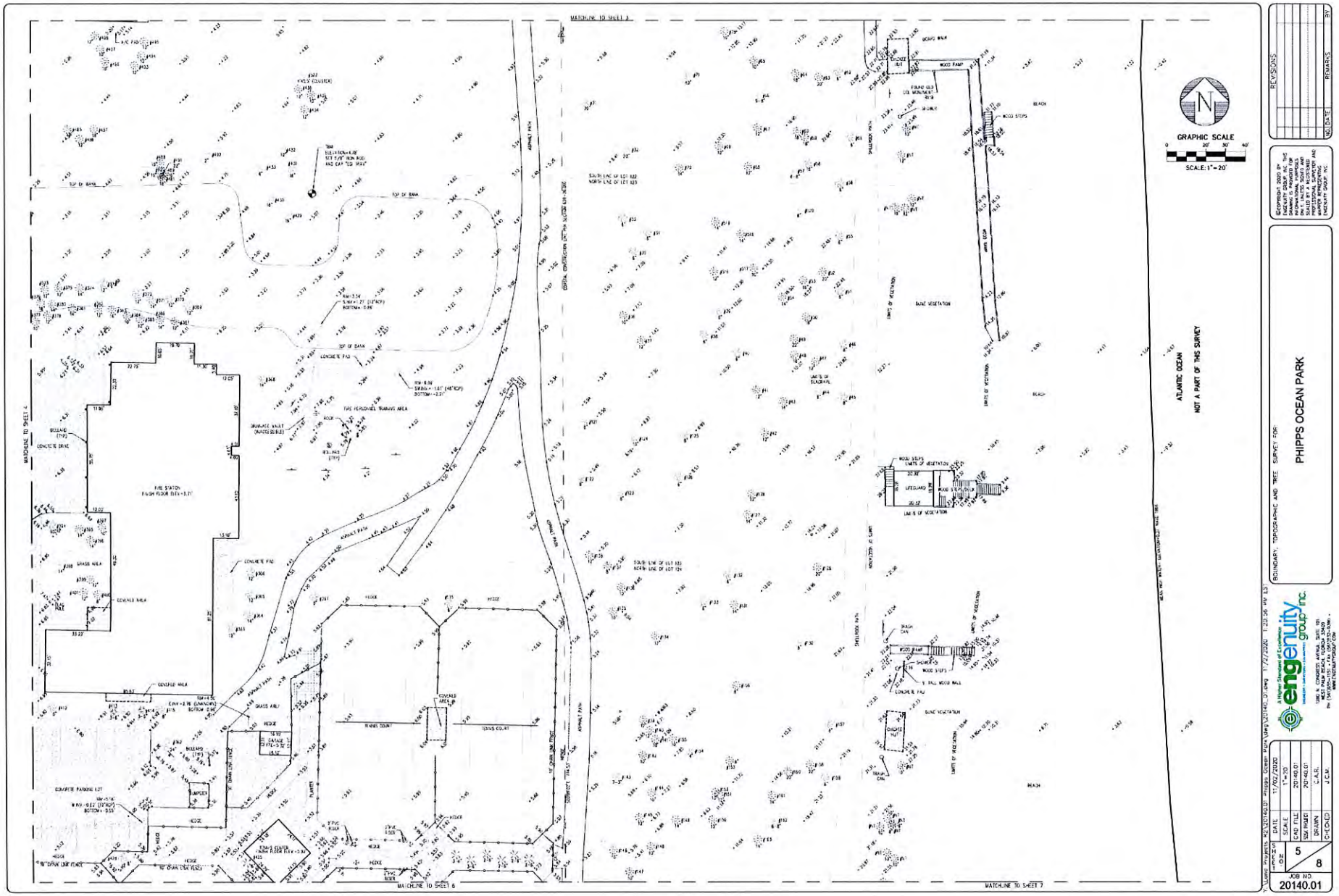
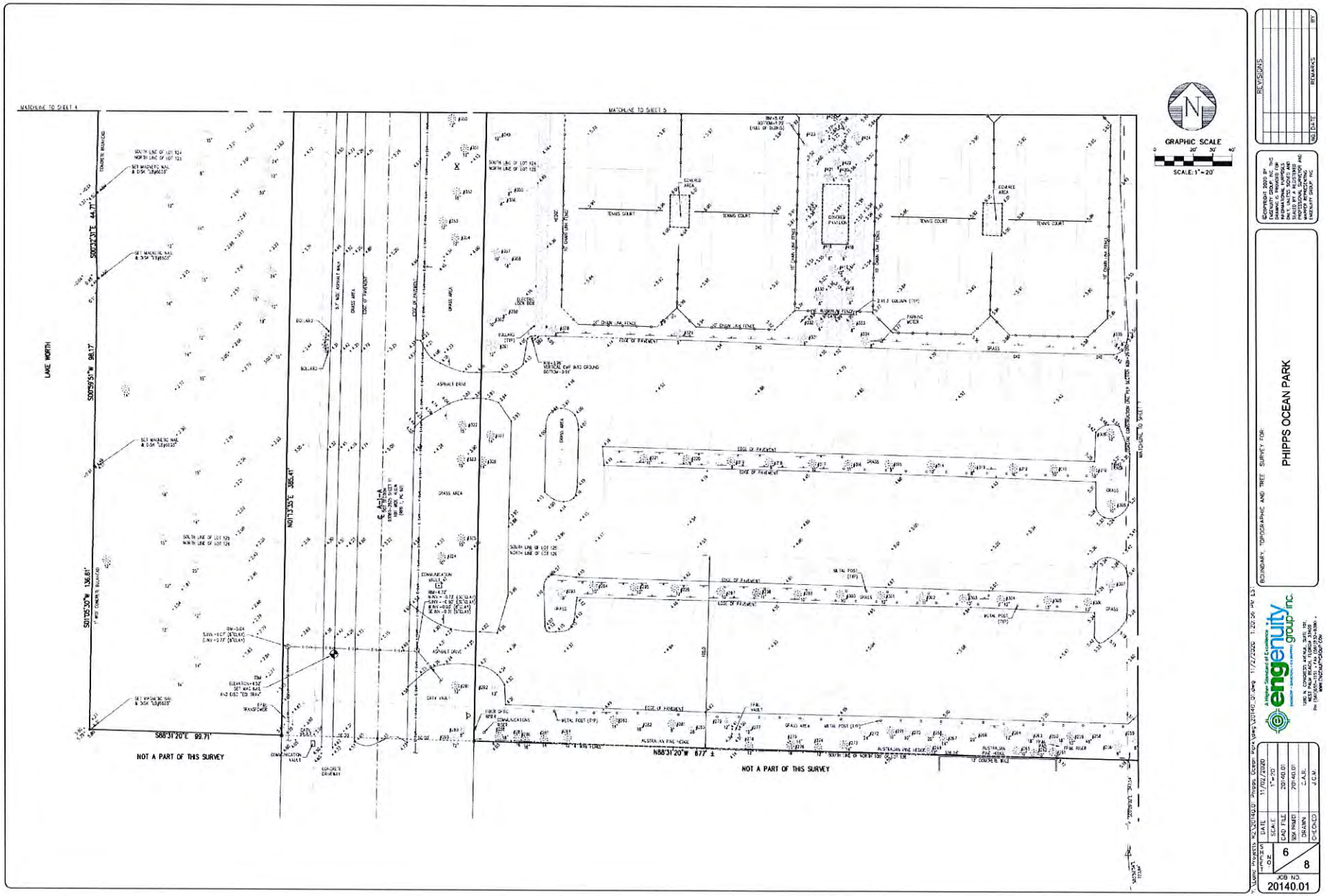
S88°31'20"E 81'±
LAKE WORTH
733'±
N01°32'35"E 220.14'
N01°32'35"E 274.72'
GRAPHIC SCALE
SCALE: 1"=20'
MATCHLINE TO SHEET 4
MATCHLINE TO SHEET 5
MATCHLINE TO SHEET 2
PHIPPS OCEAN PARK
BOUNDARY, TOPOGRAPHIC AND TREE SURVEY FOR:
REVISIONS
NO. DATE REMARKS BY
engenuity group inc.
JOB NO. 20140.01
SHEET 2 OF 8
DATE 11/02/2020
SCALE 1"=20'
FIELD BOOK
DRAWN C.A.R.
CHECKED J.C.M.


NOT A PART OF THIS SURVEY
S88°31'20"E 607'±
ATLANTIC OCEAN
NOT A PART OF THIS SURVEY
MATCHLINE TO SHEET 2
MATCHLINE TO SHEET 3
GRAPHIC SCALE
SCALE: 1" = 20'
REVISIONS
NO. DATE REMARKS BY
BOUNDARY, TOPOGRAPHIC AND TREE SURVEY FOR:
PHIPPS OCEAN PARK
engenuity group inc.
SHEET
3
8
JOB NO
20140.01
DATE 11/02/2020
SCALE 1"=20'
CAD FILE 20140.01
SW PAGE 20"x40.0"
DRAWN C.A.R.
CHECKED J.C.M.


GRAPHIC SCALE
SCALE: 1" = 20'
LAKE WORTH
IBIS WAY
R=1482.69'
Δ=2°25'11"
L=62.62'
S88°46'25"E 60.39'
R=1382.69'
Δ=1°41'37"
L=40.87'
N88°46'25"W 60.39'
N01°13'35"E 714.72'
N01°13'35"E 1200.14'
N01°13'35"E 385.41'
S01°13'35"W 1240.86'
MATCHLINE TO SHEET 2
MATCHLINE TO SHEET 3
MATCHLINE TO SHEET 8
REVISIONS
NO. DATE REMARKS BY
PHIPPS OCEAN PARK
BOUNDARY, TOPOGRAPHIC AND TREE SURVEY FOR:
engenuity group inc.
DATE 11/02/2020
SCALE 1"=20'
CAD FILE 20140.01
SW PANEL 20140.01
DRAWN C.A.E.
CHECKED J.C.M.
SHEET NO. 4
OF 8
JOB NO. 20140.01


MATCHLINE TO SHEET 3
MATCHLINE TO SHEET 4
MATCHLINE TO SHEET 6
MATCHLINE TO SHEET 7
GRAPHIC SCALE
SCALE: 1" = 20'
ATLANTIC OCEAN
NOT A PART OF THIS SURVEY
FIRE STATION
TENNIS COURT
BASE VEGETATION
LIMITS OF VEGETATION
BOUNDARY, TOPOGRAPHIC AND TREE SURVEY FOR:
PHIPPS OCEAN PARK
REVISIONS
NO. DATE REMARKS BY
engenuity group inc.
DATE 11/02/2020
SCALE 1"=20'
CAD FILE 20140.01
SDI PROJ ID 20140.01
DRAWN C.A.R.
CHECKED J.C.M.
SHEET NO. 5
OF 8
JOB NO. 20140.01


MATCHLINE TO SHEET 4
MATCHLINE TO SHEET 5
LAKE WORTH
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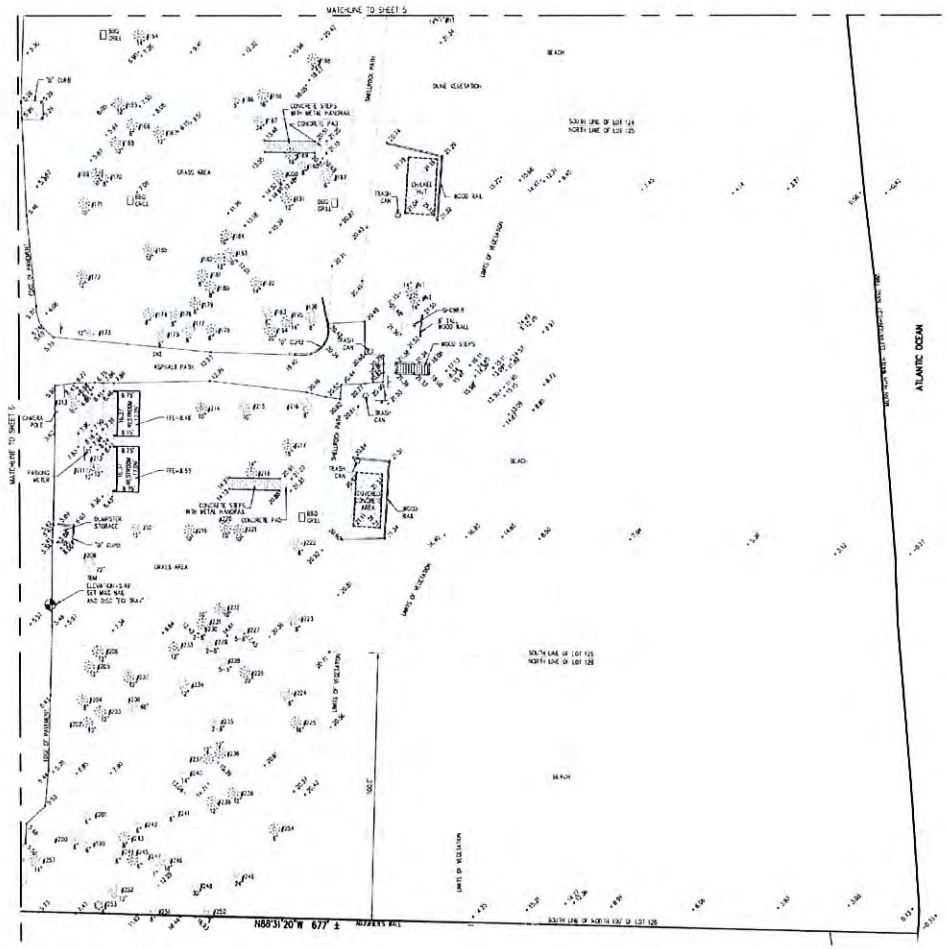
S01°05'30"W 136.61'
S88°31'20"E 99.71'
NOT A PART OF THIS SURVEY
N88°31'20"W 677' ±
NOT A PART OF THIS SURVEY
GRAPHIC SCALE
SCALE: 1" = 20'
REVISIONS
NO. DATE REMARKS BY
BOUNDARY, TOPOGRAPHIC AND TREE SURVEY FOR:
PHIPPS OCEAN PARK
engenuity group inc.
JOB NO. 20140.01
SHEET 6 OF 8



REVISIONS

NO	DATE	REMARKS	BY

TOPOGRAPHIC AND TREE SURVEY FOR:

PHIPPS OCEAN PARK

engenuity group inc.

DATE	11/02/2020
SCALE	1" = 20'
CAD FILE	20140.01
SDI PROJECT	20140.01
DRAWN	C.A.R.
CHECKED	J.C.M.

SHEET 7 OF 8

JOB NO 20140.01

TREE TABLE

Tree #	Common Name	Latin Name	Notes
1	Sabal Palm	Sabal spp.	10'
2	Sabal Palm	Sabal spp.	12'
3	Sabal Palm	Sabal spp.	10'
4	Sabal Palm	Sabal spp.	12'
5	Ficus	Ficus spp.	32'
6	Ficus	Ficus spp.	80'
7	Sabal Palm	Sabal spp.	20'
8	Coconut Palm	Cocos nucifera	8
9	Coconut Palm	Cocos nucifera	6
10	Coconut Palm	Cocos nucifera	6
11	Coconut Palm	Cocos nucifera	4
12	Coconut Palm	Cocos nucifera	4
13	Sabal Palm	Sabal spp.	12'
14	Sabal Palm	Sabal spp.	14'
15	Sabal Palm	Sabal spp.	14'
16	Sabal Palm	Sabal spp.	18'
17	Seagrape	Coccoloba uvifera	7-8"
18	Seagrape	Coccoloba uvifera	3-16"
19	Sabal Palm	Sabal spp.	14'
20	Sabal Palm	Sabal spp.	12'
21	Sabal Palm	Sabal spp.	12'
22	Sabal Palm	Sabal spp.	12'
23	Sabal Palm	Sabal spp.	12'
24	Sabal Palm	Sabal spp.	12'
25	Sabal Palm	Sabal spp.	12'
26	Ficus	Ficus spp.	36'
27	Ficus	Ficus spp.	80-12'
28	Sabal Palm	Sabal spp.	14'
29	Sabal Palm	Sabal spp.	12'
30	Ficus	Ficus spp.	4-5.5
31	Bamboo Jumbo	Bambusa vulgaris	20'
32	Ficus	Ficus spp.	20'
33	Coconut Palm	Cocos nucifera	6
34	Coconut Palm	Cocos nucifera	6
35	Coconut Palm	Cocos nucifera	6
36	Sabal Palm	Sabal spp.	10'
37	Sabal Palm	Sabal spp.	12'
38	Coconut Palm	Cocos nucifera	6
39	Coconut Palm	Cocos nucifera	6
40	Coconut Palm	Cocos nucifera	6
41	Sabal Palm	Sabal spp.	12'
42	Sabal Palm	Sabal spp.	12'
43	Sabal Palm	Sabal spp.	14'
44	Seagrape	Coccoloba uvifera	6'
45	Coconut Palm	Cocos nucifera	8
46	Coconut Palm	Cocos nucifera	8
47	Sabal Palm	Sabal spp.	12'
48	Sabal Palm	Sabal spp.	18'
49	Sabal Palm	Sabal spp.	22'
50	Sabal Palm	Sabal spp.	18'
51	Coconut Palm	Cocos nucifera	6'
52	Sabal Palm	Sabal spp.	20'
53	Sabal Palm	Sabal spp.	18'
54	Sabal Palm	Sabal spp.	14'
55	Coconut Palm	Cocos nucifera	6
56	Coconut Palm	Cocos nucifera	6
57	Seagrape	Coccoloba uvifera	6-8"
58	Sabal Palm	Sabal spp.	16'
59	Sabal Palm	Sabal spp.	18'
60	Sabal Palm	Sabal spp.	18'
61	Coconut Palm	Cocos nucifera	6
62	Coconut Palm	Cocos nucifera	6
63	Sabal Palm	Sabal spp.	20'
64	Sabal Palm	Sabal spp.	18'
65	Sabal Palm	Sabal spp.	10"
66	Seagrape	Coccoloba uvifera	6-8"
67	Sabal Palm	Sabal spp.	12'
68	Sabal Palm	Sabal spp.	12'
69	Sabal Palm	Sabal spp.	12'
70	Sabal Palm	Sabal spp.	14'
71	Ficus	Ficus spp.	30'
72	Sabal Palm	Sabal spp.	12'
73	Bamboo Jumbo	Bambusa vulgaris	6
74	Bamboo Jumbo	Bambusa vulgaris	10'
75	Sabal Palm	Sabal spp.	10'
76	Sabal Palm	Sabal spp.	12'
77	Coconut Palm	Cocos nucifera	6
78	Coconut Palm	Cocos nucifera	6
79	Coconut Palm	Cocos nucifera	6
80	Sabal Palm	Sabal spp.	14'
81	Sabal Palm	Sabal spp.	14'
82	Sabal Palm	Sabal spp.	6'
83	Sabal Palm	Sabal spp.	12'
84	Sabal Palm	Sabal spp.	10'
85	Sabal Palm	Sabal spp.	12'
86	Coconut Palm	Cocos nucifera	8
87	Sabal Palm	Sabal spp.	22'
88	Sabal Palm	Sabal spp.	22'
89	Sabal Palm	Sabal spp.	18'
90	Sabal Palm	Sabal spp.	14'
91	Sabal Palm	Sabal spp.	10'
92	Sabal Palm	Sabal spp.	8'
93	Sabal Palm	Sabal spp.	12'
94	Sabal Palm	Sabal spp.	12'
95	Sabal Palm	Sabal spp.	8'
96	Coconut Palm	Cocos nucifera	6
97	Coconut Palm	Cocos nucifera	6
98	Coconut Palm	Cocos nucifera	6
99	Sabal Palm	Sabal spp.	10'
100	Seagrape	Coccoloba uvifera	4-8"

Tree #	Common Name	Latin Name	Notes
101	Monkey	Macaca fascicularis	2-4"
102	Sabal Palm	Sabal spp.	10'
103	Sabal Palm	Sabal spp.	12'
104	Coconut Palm	Cocos nucifera	8
105	Coconut Palm	Cocos nucifera	6
106	Seagrape	Coccoloba uvifera	16'
107	Seagrape	Coccoloba uvifera	16'
108	Sabal Palm	Sabal spp.	22'
109	Coconut Palm	Cocos nucifera	6
110	Coconut Palm	Cocos nucifera	6
111	Sabal Palm	Sabal spp.	12'
112	Sabal Palm	Sabal spp.	12'
113	Sabal Palm	Sabal spp.	8
114	Sabal Palm	Sabal spp.	12'
115	Seagrape	Coccoloba uvifera	20'
116	Monkey	Macaca fascicularis	4
117	Seagrape	Coccoloba uvifera	24'
118	Seagrape	Coccoloba uvifera	6
119	Seagrape	Coccoloba uvifera	3-4"
120	Ficus	Ficus spp.	120
121	Queen's Jumbo	Bambusa vulgaris	8
122	Queen's Jumbo	Bambusa vulgaris	6
123	Queen's Jumbo	Bambusa vulgaris	8
124	Queen's Jumbo	Bambusa vulgaris	10'
125	Coconut Palm	Cocos nucifera	8'
126	Coconut Palm	Cocos nucifera	8
127	Sabal Palm	Sabal spp.	14'
128	Sabal Palm	Sabal spp.	12'
129	Sabal Palm	Sabal spp.	20'
130	Seagrape	Coccoloba uvifera	8
131	Sabal Palm	Sabal spp.	14'
132	Coconut Palm	Cocos nucifera	6
133	Coconut Palm	Cocos nucifera	6
134	Sabal Palm	Sabal spp.	12'
135	Sabal Palm	Sabal spp.	10'
136	Sabal Palm	Sabal spp.	10'
137	Sabal Palm	Sabal spp.	8
138	Sabal Palm	Sabal spp.	12'
139	Sabal Palm	Sabal spp.	12'
140	Sabal Palm	Sabal spp.	12'
141	Sabal Palm	Sabal spp.	10'
142	Sabal Palm	Sabal spp.	10'
143	Seagrape	Coccoloba uvifera	7-8"
144	Sabal Palm	Sabal spp.	10'
145	Sabal Palm	Sabal spp.	12'
146	Sabal Palm	Sabal spp.	10'
147	Sabal Palm	Sabal spp.	10'
148	Sabal Palm	Sabal spp.	10'
149	Sabal Palm	Sabal spp.	14'
150	Sabal Palm	Sabal spp.	10'
151	Sabal Palm	Sabal spp.	12'
152	Sabal Palm	Sabal spp.	8'
153	Sabal Palm	Sabal spp.	8
154	Queen's Jumbo	Bambusa vulgaris	4
155	Sabal Palm	Sabal spp.	10'
156	Sabal Palm	Sabal spp.	8
157	Coconut Palm	Cocos nucifera	8
158	Sabal Palm	Sabal spp.	22'
159	Coconut Palm	Cocos nucifera	8
160	Sabal Palm	Sabal spp.	20'
161	Sabal Palm	Sabal spp.	14'
162	Sabal Palm	Sabal spp.	9-8"
163	Sabal Palm	Sabal spp.	14'
164	Sabal Palm	Sabal spp.	14'
165	Sabal Palm	Sabal spp.	12'
166	Sabal Palm	Sabal spp.	8'
167	Sabal Palm	Sabal spp.	12'
168	Sabal Palm	Sabal spp.	10'
169	Sabal Palm	Sabal spp.	10'
170	Sabal Palm	Sabal spp.	12'
171	Sabal Palm	Sabal spp.	10'
172	Sabal Palm	Sabal spp.	12'
173	Queen's Jumbo	Bambusa vulgaris	12'
174	Sabal Palm	Sabal spp.	8
175	Coconut Palm	Cocos nucifera	8
176	Coconut Palm	Cocos nucifera	6
177	Coconut Palm	Cocos nucifera	6
178	Sabal Palm	Sabal spp.	6
179	Sabal Palm	Sabal spp.	8
180	Sabal Palm	Sabal spp.	8
181	Sabal Palm	Sabal spp.	8'
182	Sabal Palm	Sabal spp.	12'
183	Sabal Palm	Sabal spp.	10'
184	Sabal Palm	Sabal spp.	12'
185	Sabal Palm	Sabal spp.	12'
186	Queen's Jumbo	Bambusa vulgaris	5
187	Queen's Jumbo	Bambusa vulgaris	14'
188	Sabal Palm	Sabal spp.	16'
189	Sabal Palm	Sabal spp.	18'
190	Queen's Jumbo	Bambusa vulgaris	8
191	Sabal Palm	Sabal spp.	12'
192	Sabal Palm	Sabal spp.	14'
193	Sabal Palm	Sabal spp.	20'
194	Coconut Palm	Cocos nucifera	8
195	Sabal Palm	Sabal spp.	14'
196	Coconut Palm	Cocos nucifera	8
197	Coconut Palm	Cocos nucifera	8
198	Sabal Palm	Sabal spp.	24'
199	Seagrape	Coccoloba uvifera	8
200	Seagrape	Coccoloba uvifera	8

Tree #	Common Name	Latin Name	Notes
201	Seagrape	Coccoloba uvifera	6'
202	Sabal Palm	Sabal spp.	12
203	Sabal Palm	Sabal spp.	12
204	Sabal Palm	Sabal spp.	8'
205	Sabal Palm	Sabal spp.	12
206	Sabal Palm	Sabal spp.	12
207	Sabal Palm	Sabal spp.	12
208	Ficus	Ficus spp.	40'
209	Ficus	Ficus spp.	72"
210	Queen's Jumbo	Bambusa vulgaris	12
211	Queen's Jumbo	Bambusa vulgaris	12
212	Queen's Jumbo	Bambusa vulgaris	12
213	Coconut Palm	Cocos nucifera	10
214	Sabal Palm	Sabal spp.	10
215	Coconut Palm	Cocos nucifera	10
216	Coconut Palm	Cocos nucifera	8'
217	Sabal Palm	Sabal spp.	10
218	Sabal Palm	Sabal spp.	14'
219	Sabal Palm	Sabal spp.	12
220	Sabal Palm	Sabal spp.	10
221	Sabal Palm	Sabal spp.	12
222	Coconut Palm	Cocos nucifera	8'
223	Coconut Palm	Cocos nucifera	8'
224	Coconut Palm	Cocos nucifera	8'
225	Sabal Palm	Sabal spp.	10'
226	Sabal Palm	Sabal spp.	22'
227	Seagrape	Coccoloba uvifera	5-6"
228	Seagrape	Coccoloba uvifera	5-5'
229	Seagrape	Coccoloba uvifera	2-8"
230	Seagrape	Coccoloba uvifera	2-3'
231	Sabal Palm	Sabal spp.	14'
232	Sabal Palm	Sabal spp.	10
233	Sabal Palm	Sabal spp.	12
234	Coconut Palm	Cocos nucifera	12
235	Seagrape	Coccoloba uvifera	2-5'
236	Sabal Palm	Sabal spp.	12
237	Sabal Palm	Sabal spp.	12
238	Sabal Palm	Sabal spp.	12
239	Sabal Palm	Sabal spp.	12
240	Seagrape	Coccoloba uvifera	14
241	Seagrape	Coccoloba uvifera	6'
242	Seagrape	Coccoloba uvifera	6'
243	Sabal Palm	Sabal spp.	6'
244	Seagrape	Coccoloba uvifera	6'
245	Sabal Palm	Sabal spp.	6'
246	Seagrape	Coccoloba uvifera	18
247	Bread Beauty Leaf	Cordyline stricta hybrid	1'
248	Seagrape	Coccoloba uvifera	30
249	Seagrape	Coccoloba uvifera	24
250	Bread Beauty Leaf	Cordyline stricta hybrid	2
251	Pindo Apalm	Butia odorata	6'
252	Coconut Palm	Cocos nucifera	12
253	Bottlebrush Bush	Callistemon viminalis	4'
254	Coconut Palm	Cocos nucifera	6'
255	Coconut Palm	Cocos nucifera	8'
256	Coconut Palm	Cocos nucifera	8'
257	Coconut Palm	Cocos nucifera	14
258	Seagrape	Coccoloba uvifera	48
259	Coconut Palm	Cocos nucifera	10
260	Seagrape	Coccoloba uvifera	18
261	Sabal Palm	Sabal spp.	10
262	Sabal Palm	Sabal spp.	10
263	Seagrape	Coccoloba uvifera	18
264	Coconut Palm	Cocos nucifera	12
265	Coconut Palm	Cocos nucifera	10
266	Seagrape	Coccoloba uvifera	20
267	Sabal Palm	Sabal spp.	14'
268	Seagrape	Coccoloba uvifera	22
269	Sabal Palm	Sabal spp.	12
270	Seagrape	Coccoloba uvifera	10
271	Coconut Palm	Cocos nucifera	10
272	Seagrape	Coccoloba uvifera	24
273	Sabal Palm	Sabal spp.	14'
274	Sabal Palm	Sabal spp.	12
275	Ficus	Ficus spp.	40'
276	Sabal Palm	Sabal spp.	18
277	Seagrape	Coccoloba uvifera	12
278	Sabal Palm	Sabal spp.	6
279	Coconut Palm	Cocos nucifera	12
280	Seagrape	Coccoloba uvifera	28
281	Coconut Palm	Cocos nucifera	8"
282	Seagrape	Coccoloba uvifera	18
283	Coconut Palm	Cocos nucifera	14
284	Sabal Palm	Sabal spp.	12
285	Sabal Palm	Sabal spp.	14
286	Sabal Palm	Sabal spp.	10
287	Sabal Palm	Sabal spp.	10
288	Sabal Palm	Sabal spp.	18
289	Queen's Jumbo	Bambusa vulgaris	8"
290	Ficus	Ficus spp.	32'
291	Sabal Palm	Sabal spp.	12
292	Bread Beauty Leaf	Cordyline stricta hybrid	10
293	Coconut Palm	Cocos nucifera	12
294	Sabal Palm	Sabal spp.	10
295	Sabal Palm	Sabal spp.	12
296	Sabal Palm	Sabal spp.	10
297	Sabal Palm	Sabal spp.	10
298	Sabal Palm	Sabal spp.	11
299	Sabal Palm	Sabal spp.	10
300	Sabal Palm	Sabal spp.	12

Tree #	Common Name	Latin Name	Notes
301	Sabal Palm	Sabal spp.	12'
302	Sabal Palm	Sabal spp.	11'
303	Sabal Palm	Sabal spp.	10'
304	Sabal Palm	Sabal spp.	12'
305	Sabal Palm	Sabal spp.	12'
306	Sabal Palm	Sabal spp.	12'
307	Coconut Palm	Cocos nucifera	4"
308	Coconut Palm	Cocos nucifera	12"
309	Coconut Palm	Cocos nucifera	12"
310	Sabal Palm	Sabal spp.	12'
311	Sabal Palm	Sabal spp.	12'
312	Sabal Palm	Sabal spp.	12'
313	Sabal Palm	Sabal spp.	8"
314	Sabal Palm	Sabal spp.	12"
315	Sabal Palm	Sabal spp.	9"
316	Sabal Palm	Sabal spp.	11"
317	Sabal Palm	Sabal spp.	12"
318	Sabal Palm	Sabal spp.	9"
319	Sabal Palm	Sabal spp.	9"
320	Sabal Palm	Sabal spp.	8"
321	Sabal Palm	Sabal spp.	11"
322	Sabal Palm	Sabal spp.	15"
323	Sabal Palm	Sabal spp.	15"
324	Sabal Palm	Sabal spp.	12"
325	Sabal Palm	Sabal spp.	15"
326	Sabal Palm	Sabal spp.	16"
327	Sabal Palm	Sabal spp.	14"
328	Coconut Palm	Cocos nucifera	8
329	Coconut Palm	Cocos nucifera	8
330	Coconut Palm	Cocos nucifera	8
331	Coconut Palm	Cocos nucifera	8
332	Coconut Palm	Cocos nucifera	6
333	Coconut Palm	Cocos nucifera	8
334	Coconut Palm	Cocos nucifera	8
335	Coconut Palm	Cocos nucifera	8
336	Coconut Palm	Cocos nucifera	8
337	Sabal Palm	Sabal spp.	18'
338	Sabal Palm	Sabal spp.	14"
339	Sabal Palm	Sabal spp.	8"
340	Sabal Palm	Sabal spp.	10'
341	Sabal Palm	Sabal spp.	10'
342	Sabal Palm	Sabal spp.	18"
343	Sabal Palm	Sabal spp.	12"
344	Sabal Palm	Sabal spp.	14"
345	Sabal Palm	Sabal spp.	18"
346	Sabal Palm	Sabal spp.	14"
347	Bread Beauty Leaf	Cordyline stricta hybrid	12"
348	Sabal Palm	Sabal spp.	12"
349	Bread Beauty Leaf	Cordyline stricta hybrid	12"
350	Sabal Palm	Sabal spp.	12"
351	Sabal Palm	Sabal spp.	12"
352	Sabal Palm	Sabal spp.	15"
353	Sabal Palm	Sabal spp.	12"
354	Sabal Palm	Sabal spp.	12"
355	Seagrape	Coccoloba uvifera	8"
356	Sabal Palm	Sabal spp.	8"
357	Coconut Palm	Cocos nucifera	12"
358	Bread Beauty Leaf	Cordyline stricta hybrid	18"
359	Bread Beauty Leaf	Cordyline stricta hybrid	8"
360	Seagrape	Coccoloba uvifera	12"
361	Queen's Jumbo	Bambusa vulgaris	12"
362	Coconut Palm	Cocos nucifera	24"
363	Coconut Palm	Cocos nucifera	12"
364	Coconut Palm	Cocos nucifera	14"
365	Coconut Palm	Cocos nucifera	12"
366	Coconut Palm	Cocos nucifera	12"
367	Coconut Palm	Cocos nucifera	8"
368	Queen's Jumbo	Bambusa vulgaris	14"
369	Sabal Palm	Sabal spp.	12"
370	Coconut Palm	Cocos nucifera	12"
371	Coconut Palm	Cocos nucifera	14"
372	Coconut Palm	Cocos nucifera	12"
373	Coconut Palm	Cocos nucifera	12"
374	Sabal Palm	Sabal spp.	14"
375	Sabal Palm	Sabal spp.	12"
376	Sabal Palm	Sabal spp.	14"
377	Sabal Palm	Sabal spp.	12"
378	Sabal Palm	Sabal spp.	14"
379	Sabal Palm	Sabal spp.	15"
380	Sabal Palm	Sabal spp.	14"
381	Sabal Palm	Sabal spp.	14"
382	Sabal Palm	Sabal spp.	12"
383	Sabal Palm	Sabal spp.	14"
384	Sabal Palm	Sabal spp.	12"
385	Sabal Palm	Sabal spp.	12"
386	Sabal Palm	Sabal spp.	14"
387	Sabal Palm	Sabal spp.	12"
388	Bread Beauty Leaf	Cordyline stricta hybrid	36"
389	Sabal Palm	Sabal spp.	14"
390	Sabal Palm	Sabal spp.	12"
391	Sabal Palm	Sabal spp.	12"
392	Sabal Palm	Sabal spp.	12"
393	Sabal Palm	Sabal spp.	12"
394	Coconut Palm	Cocos nucifera	12"
395	Sabal Palm	Sabal spp.	14"
396	Sabal Palm	Sabal spp.	14"
397	Sabal Palm	Sabal spp.	14"
398	Sabal Palm	Sabal spp.	14"
399	Fishtail Palm	Caryota urens	12'
400	Sabal Palm	Sabal spp.	12'

Tree #	Common Name	Latin Name	Notes
401	Sabal Palm	Sabal spp.	12'
402	Green Buttonwood	Conocarpus erectus	22'
403	Sabal Palm	Sabal spp.	10'
404	Sabal Palm	Sabal spp.	12'
405	Sabal Palm	Sabal spp.	10'
406	Sabal Palm	Sabal spp.	12'
407	Sabal Palm	Sabal spp.	10'
408	Queen's Jumbo	Bambusa vulgaris	24'
409	Green Buttonwood	Conocarpus erectus	20'
410	Coconut Palm	Cocos nucifera	8
411	Coconut Palm	Cocos nucifera	8
412	Coconut Palm	Cocos nucifera	6
413	Silver Sea Palm	Bismarckia nobilis	3-6"
414	Silver Sea Palm	Bismarckia nobilis	3-6"
415	Coconut Palm	Cocos nucifera	8
416	Coconut Palm	Cocos nucifera	6
417	Coconut Palm	Cocos nucifera	10'
418	Coconut Palm	Cocos nucifera	8
419	Coconut Palm	Cocos nucifera	8
420	Coconut Palm	Cocos nucifera	8
421	Coconut Palm	Cocos nucifera	6
422	Coconut Palm	Cocos nucifera	8
423	Coconut Palm	Cocos nucifera	6
424	Coconut Palm	Cocos nucifera	10'
425	Christmas Palm	Veitchia merrillii	7'
426	Christmas Palm	Veitchia merrillii	8-9'
427	Christmas Palm	Veitchia merrillii	Large
428	Coconut Palm	Cocos nucifera	8
429	Seagrape	Coccoloba uvifera	16'
430	Seagrape	Coccoloba uvifera	8
431	Seagrape	Coccoloba uvifera	16'
432	Seagrape	Coccoloba uvifera	12'
433	Green Buttonwood	Conocarpus erectus	6
434	Sabal Palm	Sabal spp.	12'
435	Sabal Palm	Sabal spp.	10'
436	Sabal Palm	Sabal spp.	12'
437	Green Buttonwood	Conocarpus erectus	12'
438	Sabal Palm	Sabal spp.	24'
439	Sabal Palm	Sabal spp.	24'
440	Royal Poinciana	Delonix regia	4
441	Queen's Jumbo	Bambusa vulgaris	8
442	Queen's Jumbo	Bambusa vulgaris	6
443	Queen's Jumbo	Bambusa vulgaris	6
444	Queen's Jumbo	Bambusa vulgaris	6
445	Queen's Jumbo	Bambusa vulgaris	6
446	Queen's Jumbo	Bambusa vulgaris	4
447	Sabal Palm	Sabal spp.	10'
448	Sabal Palm	Sabal spp.	14'
449	Sabal Palm	Sabal spp.	10'
450	Sabal Palm	Sabal spp.	12'
451	Sabal Palm	Sabal spp.	10'
452	Sabal Palm	Sabal spp.	10'
453	Sabal Palm	Sabal spp.	10'
454	Christmas Palm	Veitchia merrillii	5
455	Sabal Palm	Sabal spp.	12'
456	Sabal Palm	Sabal spp.	10'
457	Sabal Palm	Sabal spp.	12'
458	Sabal Palm	Sabal spp.	10'
459	Sabal Palm	Sabal spp.	10'
460	Sabal Palm	Sabal spp.	10'
461	Green Buttonwood	Conocarpus erectus	6
462	Live Oak	Quercus virginiana	14'
463	Green Buttonwood	Conocarpus erectus	12
464	Sabal Palm	Sabal spp.	10'
465	Green Buttonwood	Conocarpus erectus	10
466	Sabal Palm	Sabal spp.	10'
467	Flame Tree	Peltophorum	2
468	Sabal Palm	Sabal spp.	10'
469	Sabal Palm	Sabal spp.	12
470	Sabal Palm	Sabal spp.	10'
471	Sabal Palm	Sabal spp.	20'
472	Sabal Palm	Sabal spp.	10'
473	Sabal Palm	Sabal spp.	10'
474	Sabal Palm	Sabal spp.	12'
475	Sabal Palm	Sabal spp.	10'
476	Sabal Palm	Sabal spp.	10'
477	Sabal Palm	Sabal spp.	10'
478	Sabal Palm	Sabal spp.	10'
479	Sabal Palm	Sabal spp.	12'
480	Seagrape	Coccoloba uvifera	40'
481	Sabal Palm	Sabal spp.	18'
482	Sabal Palm	Sabal spp.	14'
483	Sabal Palm	Sabal spp.	14'
484	Sabal Palm	Sabal spp.	10'
485	Sabal Palm	Sabal spp.	12'
486	Sabal Palm	Sabal spp.	10'
487	Sabal Palm	Sabal spp.	10'
488	Sabal Palm	Sabal spp.	16'
489	Sabal Palm	Sabal spp.	10'
490	Sabal Palm	Sabal spp.	16'
491	Sabal Palm	Sabal spp.	22'
492	Royal Poinciana	Delonix regia	2
493	Sabal Palm	Sabal spp.	12'
494	Sabal Palm	Sabal spp.	12'
495	Sabal Palm	Sabal spp.	12'
496	Sabal Palm	Sabal spp.	10'
497	Sabal Palm	Sabal spp.	10'
498	Sabal Palm	Sabal spp.	12'
499	Seagrape	Coccoloba uvifera	12'
500	Green Buttonwood	Conocarpus erectus	12'

Tree #	Common Name	Latin Name	Notes
501	Sabal Palm	Sabal spp.	12'
502	Sabal Palm	Sabal spp.	16'
503	Seagrape	Coccoloba uvifera	12'
504	Double Seagrape	Coccoloba uvifera	4-5'
505	Sabal Palm	Sabal spp.	12'
506	Sabal Palm	Sabal spp.	12'
507	Bald Beauty Leaf	Calophyllum brasiliense	10'
508	Bald Beauty Leaf	Calophyllum brasiliense	18"
509	Bald Beauty Leaf	Calophyllum brasiliense	20"
510	Sabal Palm	Sabal spp.	2'
511	Sabal Palm	Sabal spp.	10"
512	Sabal Palm	Sabal spp.	12'
513	Bald Beauty Leaf	Calophyllum brasiliense	30"
514	Seagrape	Coccoloba uvifera	24"
515	Bald Beauty Leaf	Calophyllum brasiliense	12"
516	Bald Beauty Leaf	Calophyllum brasiliense	12"
517	Bamboo Jumbo	Bambusa vulgaris	18"
518	Bottlebrush Palm	Hyophorbe lagenicaulis	4'
519	Sabal Palm	Sabal spp.	12'
520	Sabal Palm	Sabal spp.	12'
521	Sabal Palm	Sabal spp.	12'
522	Sabal Palm	Sabal spp.	8'
523	Sabal Palm	Sabal spp.	12'
524	Ficus	Ficus spp.	36"
525	Sabal Palm	Sabal spp.	10'
526	Sabal Palm	Sabal spp.	12'
527	Sabal Palm	Sabal spp.	12'
528	Sabal Palm	Sabal spp.	10'
529	Sabal Palm	Sabal spp.	12'
530	Sabal Palm	Sabal spp.	12'
531	Seagrape	Coccoloba uvifera	18'
532	Seagrape	Coccoloba uvifera	10'
533	Seagrape	Coccoloba uvifera	20'
534	Seagrape	Coccoloba uvifera	12'
535	Seagrape	Coccoloba uvifera	16'
536	Seagrape	Coccoloba uvifera	8'
537	Double Seagrape	Coccoloba uvifera	10'
538	Seagrape	Coccoloba uvifera	30'
539	Seagrape	Coccoloba uvifera	8'
540	Seagrape	Coccoloba uvifera	24'
541	Seagrape	Coccoloba uvifera	3-6'
542	Seagrape	Coccoloba uvifera	14'
543	Seagrape	Coccoloba uvifera	26'
544	Seagrape	Coccoloba uvifera	18'
545	Seagrape	Coccoloba uvifera	16'
546	Sabal Palm	Sabal spp.	10'
547	Sabal Palm	Sabal spp.	12'
548	Sabal Palm	Sabal spp.	12'
549	Sabal Palm	Sabal spp.	10'
550	Sabal Palm	Sabal spp.	14'
551	Sabal Palm	Sabal spp.	12'
552	Sabal Palm	Sabal spp.	12'
553	Sabal Palm	Sabal spp.	12'
554	Sabal Palm	Sabal spp.	12'
555	Sabal Palm	Sabal spp.	12'
556	Sabal Palm	Sabal spp.	12'
557	Sabal Palm	Sabal spp.	10'
558	Sabal Palm	Sabal spp.	10'
559	Sabal Palm	Sabal spp.	10'
560	Sabal Palm	Sabal spp.	10'
561	Sabal Palm	Sabal spp.	12'
562	Sabal Palm	Sabal spp.	12'
563	Sabal Palm	Sabal spp.	12'
564	Sabal Palm	Sabal spp.	12'
565	Sabal Palm	Sabal spp.	12'
566	Sabal Palm	Sabal spp.	12'
567	Sabal Palm	Sabal spp.	10'
568	Bald Beauty Leaf	Calophyllum brasiliense	16"

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REVISIONS		
NO.	DATE	REMARKS

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DRAWN BY:	JH
DATE:	11/20/2020
SCALE:	N/A
CAD FILE:	20140.01
SEA PAGE:	200-60.01
DRAWN:	C.A.S.
CHECKED:	J.GUE
SHEET

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