Town of Lake Park, Florida

Tree Board Meetingg Agenda

Tuesday, January 10, 2023 at 6:00 PM

Town Hall Commission Chamber, 535 Park Avenue, Lake Park, FL 33403

Brady Drew	**—**	**Chair**
Pamela Frazier	**—**	**Vice-Chair**
Shana Phelan	**—**	**Board Member**
Gillian Kennedy Wright	**—**	**Board Member**

PLEASE TAKE NOTICE AND BE ADVISED, that if any interested person desires to appeal any decision of the Tree Board, with respect to any matter considered at this meeting, such interested person will need a record of the proceedings, and for such purpose, may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. Persons with disabilities requiring accommodations in order to participate in the meeting should contact the Town Clerk's office by calling 881-3311 at least 48 hours in advance to request accommodations.

CALL TO ORDER/ROLL CALL

PLEDGE OF ALLEGIANCE

PRESENTATIONS:

CONSENT AGENDA:

1. December 13, 2022 Tree Board Meeting Minutes.

NEW BUSINESS:

2. **Progress Update on the 100% Design Specifications and Implementation Timeline for the 2nd Street Green Infrastructure (Roadside Bioswale) Project**

PUBLIC COMMENT:

This time is provided for addressing items that do not appear on the Agenda. Please complete a comment card and provide it to the Agency Clerk so speakers may be announced. Please remember comments are limited to a TOTAL of three minutes.

COMMITTEE MEMBER COMMENTS:

STAFF MEMBER COMMENTS:

ADJOURNMENT:

FUTURE MEETING DATE: The next scheduled Tree Board Meeting will be conducted on February 14, 2023

Town of Lake Park, Florida

Tree Board Meeting Minutes

Tuesday, December 13, 2022 at 6:00 PM

Town Hall Commission Chamber, 535 Park Avenue, Lake Park, FL 33403

Brady Drew	**—**	**Chair**
Pamela Frazier	**—**	**Vice-Chair**
Shana Phelan	**—**	**Board Member**
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CALL TO ORDER/ROLL CALL

6:03 P.M.

PRESENT

Brady Drew

Shana Phelan

Gillian Kennedy Wright

ABSENT

Pamela Fraizer

PLEDGE OF ALLEGIANCE

Town Clerk Mendez

PRESENTATIONS: NONE

None

CONSENT AGENDA:

Motion made to approve the Consent Agency by Kennedy Wright, Seconded by Phelan.

Voting Yea: Drew

1. October 11, 2022 Tree Board Meeting

NEW BUSINESS:

2. 2023 Meeting Schedule

PUBLIC COMMENT:

This time is provided for addressing items that do not appear on the Agenda. Please complete a comment card and provide it to the Agency Clerk so speakers may be announced. Please remember comments are limited to a TOTAL of three minutes.

None

BOARD MEMBER COMMENTS:

Chair Drew asked when would the Memorial Tree and Planting item come before the Town Commission for approval. Town Clerk Mendez was unsure and suggested that Chair Drew reach out to the Public Works Director.

STAFF MEMBER COMMENTS:

None

ADJOURNMENT:

6:10 P.M.

FUTURE MEETING DATE: The next scheduled Tree Board Meeting will be conducted on January 10, 2023

Town of Lake Park Tree Board

Agenda Request Form

Meeting Date:	**January 10, 2023**
Originating Department:	Public Works
Agenda Title:	**Progress Update on the 100% Design Specifications and Implementation Timeline for the 2nd Street Green Infrastructure (Roadside Bioswale) Project**

Approved by Town Manager: _____ **Date:** _____

Cost of Item:	N/A	**Funding Source:**	N/A
Account Number:	N/A	**Finance Signature:**	N/A
Advertised Date:	N/A	**Newspaper:**	N/A

Attachments:

1. Agenda Request Form (ARF)
2. PowerPoint Presentation on subject project design progress.
3. Location of Tree Conflicts in Project Area Project Design Plans
4. Project Profile

Please initial one:

	Yes, I have notified everyone
X	Not applicable in this case

Summary Explanation/Background:

Since 2019, extensive research and advanced hydrology and hydraulic modeling conducted during the development of the Town's Stormwater Master Plan (SWMP) confirmed that the Town's storm sewer network lacks capacity to convey rainfall runoff from mostly impervious dense urban areas for storm events of significance. Additionally, the study also identified localized flooding in at least 23 locations throughout the Town, including two areas of significance on 2nd Street.

In 2020, in collaboration with Town staff, our stormwater engineering consultants developed a practical, Green Infrastructure project to address localized flooding on 2nd Street by placing roadside bioswales at

the intersections of 2nd Street and Foresteria Drive (Figure 1) and 2nd Street and Evergreen Drive (Figure 2).

Figure 2

Figure 1

The rationale for the selection of this flooding mitigation strategy is that in addition to their stormwater conveyance benefits, bioswales improve the quality of the stormwater runoff before it infiltrates the soil or is discharged to tide. They are also widely considered a more visually appealing alternative, especially if decorative, native plants are chosen. Moreover, these green spaces can provide a habitat for some wildlife species, especially birds.

Over the last two years, Town staff and stormwater consultants have worked to secure grant funding for this important project, securing grant funding for both project design and construction.

Specifically, in August 2021, the Town entered into an agreement with the Florida Department of Environmental Protection, Coastal Partnership Initiative for planning (design) grant funding in the amount of **$30,000.00**.

The total planning and design cost for the 2nd Street roadside bioswales project is **$85,000.00**, which includes distributions from the following funding sources:

Also, in August 2021, the Town Commission approved Resolution 63-10-21, approving a Work Authorization for Water Resources Management Associates (WRMA) to develop 100% construction-ready plans for 2nd Street Roadside Bioswale Project (the Project). WRMA is one of the Town's stormwater engineering consultant and currently has an active, five (5) year continuing services agreement with the Town under approved Resolution No. 79-11-18.

Concurrently with the approval of the WRMA work authorization and to help offset the projected costs to construct the Project, Town staff applied for Florida Department of Environmental Protection (the Department), Resilient Florida Grant Program funding and was notified on February 1, 2022 that a grant award in the amount of **$553,784.54** (**with no match**) had been approved. This implementation-focused grant program is consistent with flood mitigation strategies included in the Town's SWMP.

Moreover, the Agreement associated with this award for construction funding is pending as of the date of this Agenda item.

Project Update to the Town Commission and the Tree Board

On October 5, 2022, Department and WRMA Staffs, along with landscape architect and WRMA sub-contractor Coutler & Hearing, presented a progress update to the Town Commission to highlight key project design elements, environmental and drainage efficiency benefits, planting specifications, and more **(Attachment 4)**.

Following the presentation, a member of the public expressed concerns about the potential removal of existing canopy and palm trees in the project area and this concern was also communicated verbally and via email by Tree Board Chair Brady Drew to Public Works Director Roberto Travieso.

This agenda item and accompanying presentation **(Attachment 2)**. to the Tree Board is intended to inform the Board regarding the project's basis for stormwater and roadway engineering design, landscape design, and the applicable regulations associated with the project. Additionally, the presentation will provide details regarding any existing canopy and palm trees within the project area **(Attachment 3)**. and their associated relocation plans, as applicable.

Finally, the presentation will revisit and highlight key project design elements, environmental and drainage efficiency benefits, planting specifications.

Recommended Motion: For discussion only.

Final Design Progress Update on the 2nd Street Green Infrastructure Roadside Bioswale Project

Roberto Travieso
Director, Department of Public Works

Cotleur & Hearing

WRMA

Presentation Outline

1. Opening Comments
2. Project Background
3. Storm Water Master Plan (SWMP)
4. Why 2nd Street?
5. Design Approach
6. Implementation Timeline
7. Landscape Design & Renderings
8. Questions

Project Team

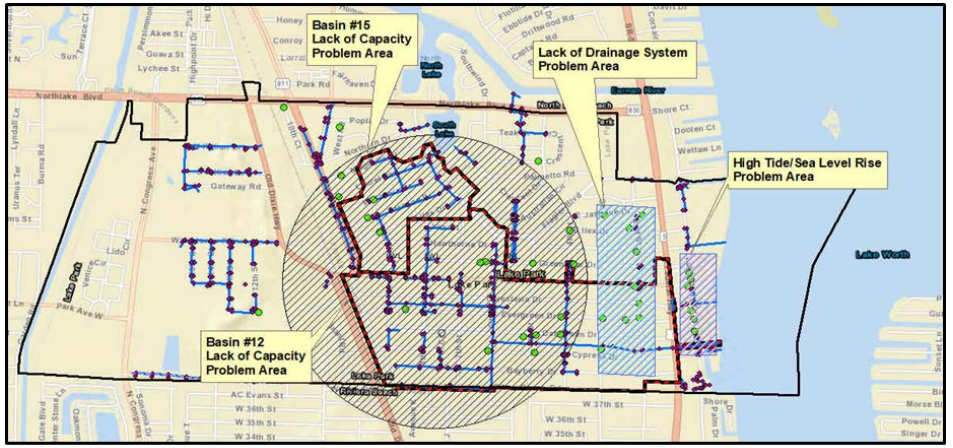
- **John D'Agostino** – Town Manager
- **Roberto Travieso** – Public Works Director
- **Raul Mercado** – Principal Engineer, WRMA
- **Michael Mercado** – Lead Design Engineer, WRMA
- **Don Hearing** -- Principal/Landscape Architect, Cotleur & Hearing
- **John Wille** – Capital Projects Manager

Project Background & Design Concept

MICHAEL MERCADO, PE

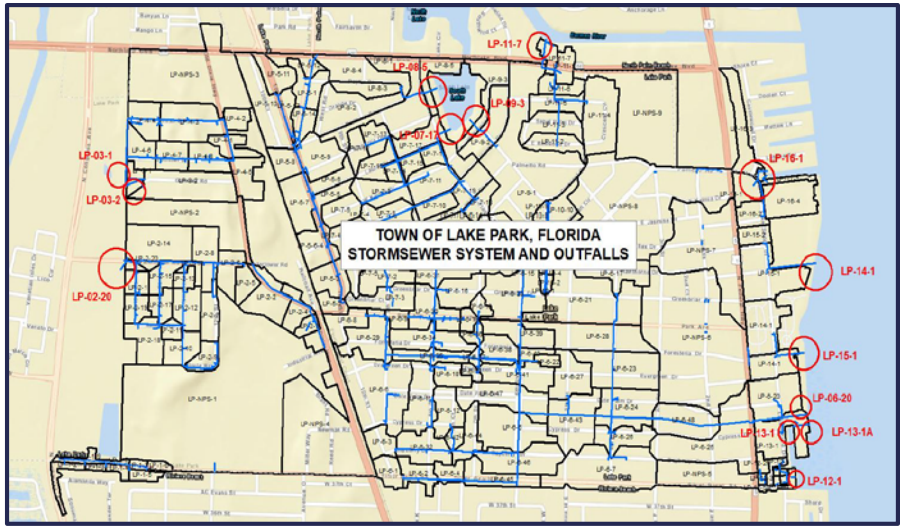
Stormwater Management Needs Assessment
Water Quantity

- Study showed that of the 10.62 miles of storm sewers (Approx. 29%) needs to be immediately (1-5 years) rehabilitated (Repaired/Replaced) and the rest within 20 years.
- Identifies key major capacity surcharge flooding problems along Southern Outfall (446 acre watershed)
- Identifies many areas without stormsewers with nuisance flooding such as along 2nd Street
- Identifies long term climate change (Sea Level Rise) challenges along 0.8 miles of LWI waterfront



Stormwater Management Needs Assessment
Water Quality

2/3 of the ToLP area Discharges untreated runoff to the impaired Lake Worth Lagoon



FDEP/NPDES Permit requires the ToLP to monitor runoff discharges from 14 outfalls

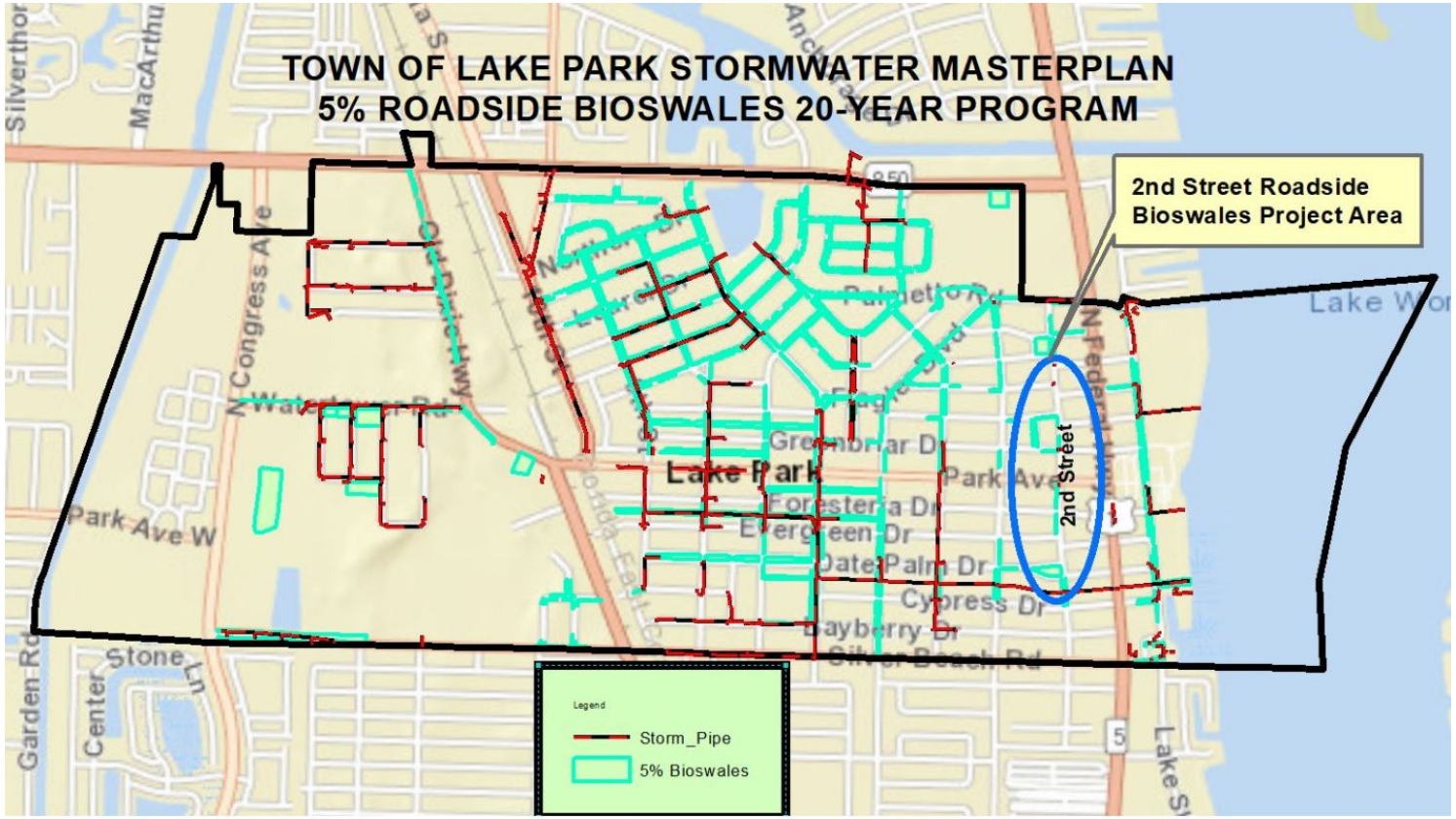
Receiving Waterbody	Table 4 Pollutant Loading Reductions (Lbs/year) for 5% Roadside Bioswales BMPs					
	BOD_5	TSS	TP	CU	ZN	N
LWL (Current BMPs)	22,418	98,253	883	53.7	261.5	10,630
LWL (Proposed Bioswales)	20,081	76,444	796	50.8	238.6	10,366
Reduction %	**10.4**	**22.2**	**9.8**	**5.4**	**8.8**	**2.5**

Bioswales along 5% of the ToLP ROW's will reduce sediment pollutants loadings to the LWL by as much as 22% (TSS)

Stormwater Master Plan (SWMP)

- Updated in 2019-2020
- Adopted by Town Commission in 2021
- Provided the incremental conversion of 5% roadside swales to green infrastructure (bioswales/biodentention areas)
- Recommends the use of Stormwater fees exclusively to cover O&M costs (no Capital Improvements)
- Recommends the use of federal grants for project Capital Improvements

Stormwater Master Plan Approach
Green Infrastructure For Climate Change



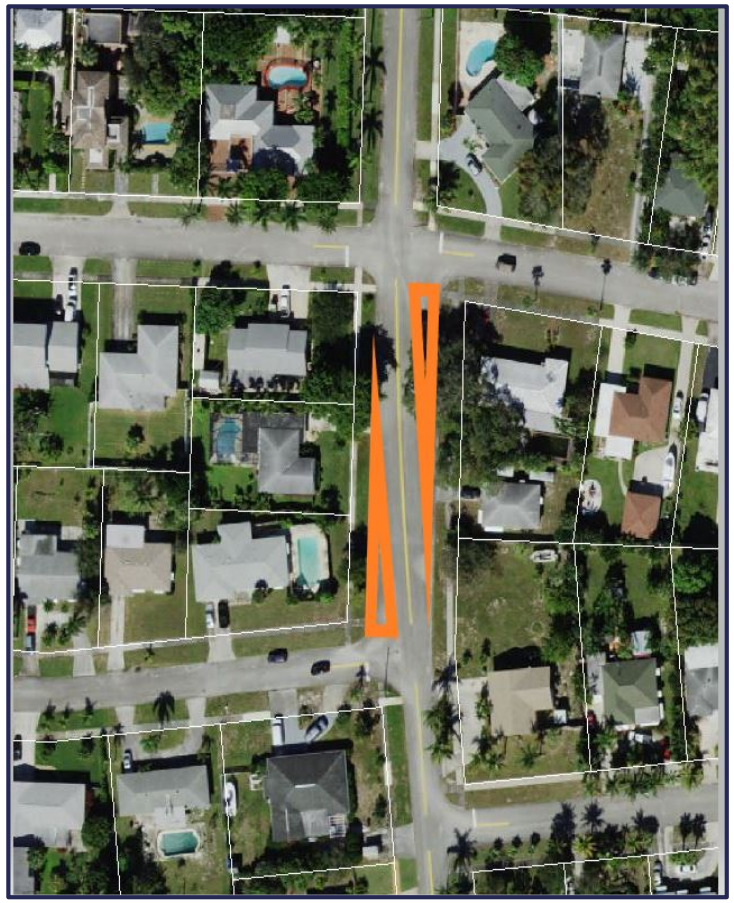
5% ROADSIDE BIOSWALES 20-YEAR PROGRAM

FIRST PROJECT - BIOSWALES ALONG 2ND STREET ROW

Higher Intensity Rainfall is Causing More Frequent Nuisance Flooding Along 2nd Street Intersections

Why 2ND Street ?

- Extra pavement was added to the ROW in the past without grading
- Additional impervious area runoff creates ponding and nuisance flooding at intersections
- Opportunity for design of a GI-Based Bioswale to address nuisance flooding and water quality NPDES requirements

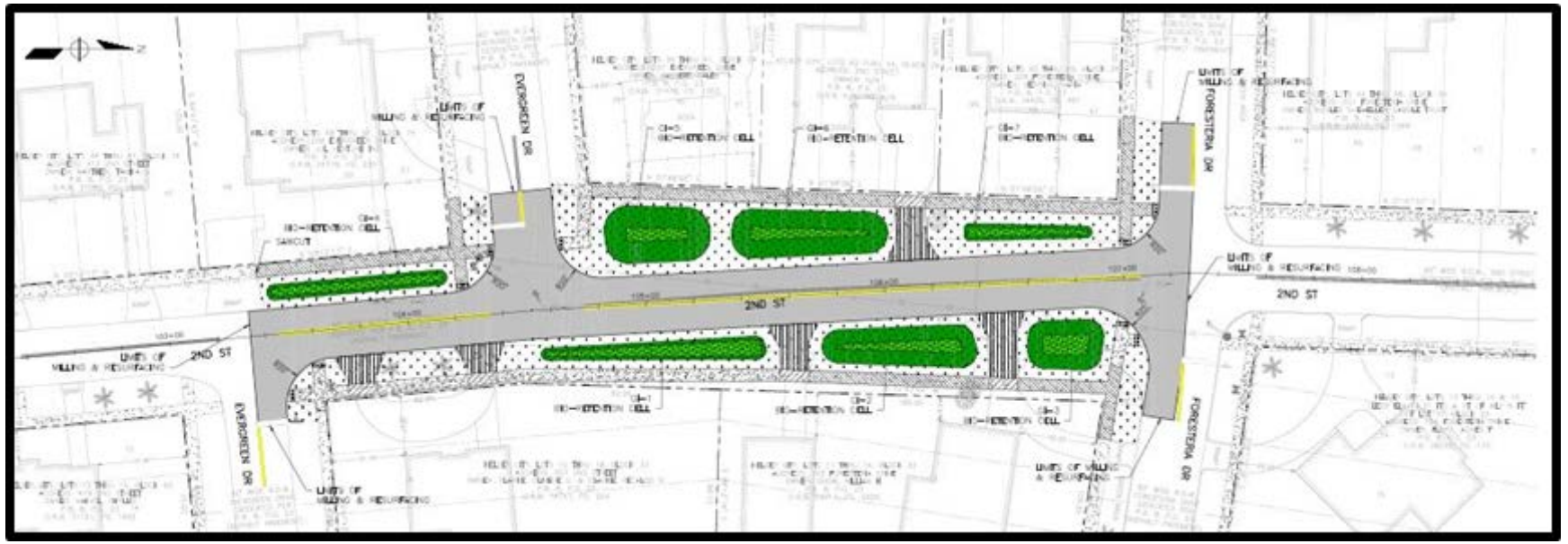


FORESTERIA DRIVE

EVERGREEN DRIVE

Prototype Bioswale Design Solution
Surface Component

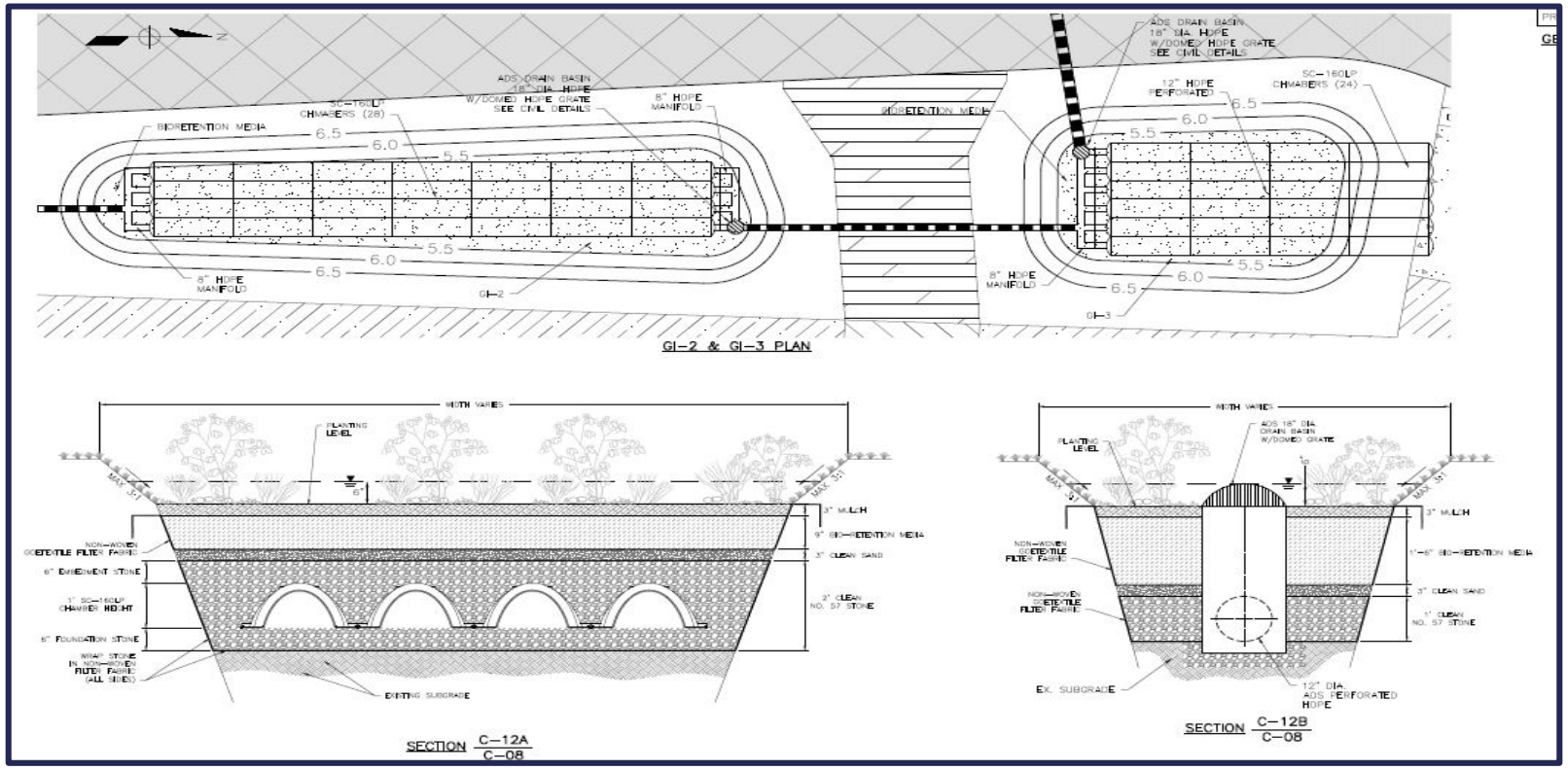
- Surface (planted) bioswales captures first flush of runoff for infiltration and evapotranspiration



- ❑ **Bioswales green-planted areas beautify the right-of-way**
- ❑ **Bioswales soils layers provide mulch for additional water quality treatment of runoff**

Prototype Bioswale Design Solution
Underground Component

- Underground Storage Filtration Chambers provide additional runoff volume treatment capacity



- ❑ **Interconnected chambers for maximum utilization of underground space**
- ❑ **Chambers can be accessed for maintenance to clear debris**

Project Landscape Design

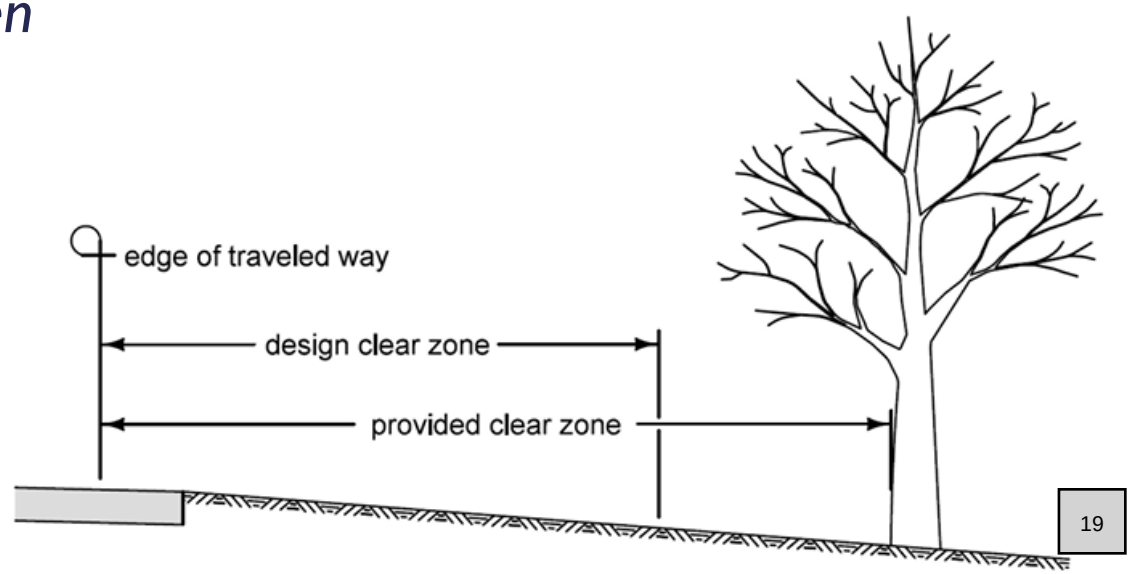
NICOLE PLUNKETT, ASLA, PLA, AICP

Landscape Design Approach

- Observe street design standards published by FDOT

  Clear Zone: The unobstructed, traversable area beyond the edge of the traveled way for the recovery of errant vehicles. Source: FDOT Green Book

- Clear Zone Design Guideline: 6 Foot from edge of traveled lane
- Standards also applicable to landscape design



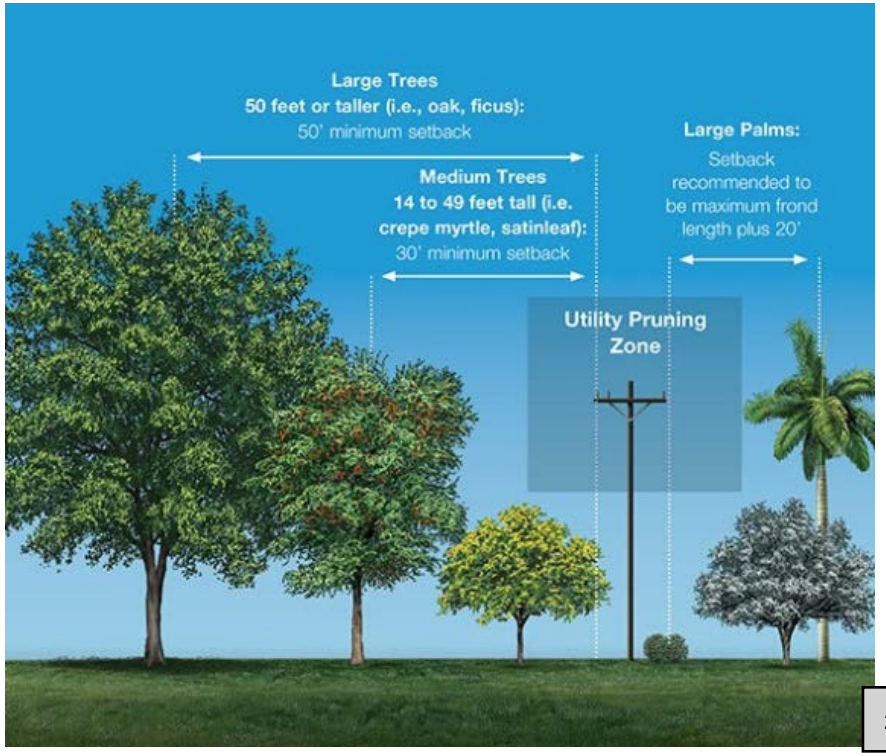
Landscape Design Approach

Observe applicable Regulations for utility operators in the Town:

SEACOAST UTILITY AUTHORITY

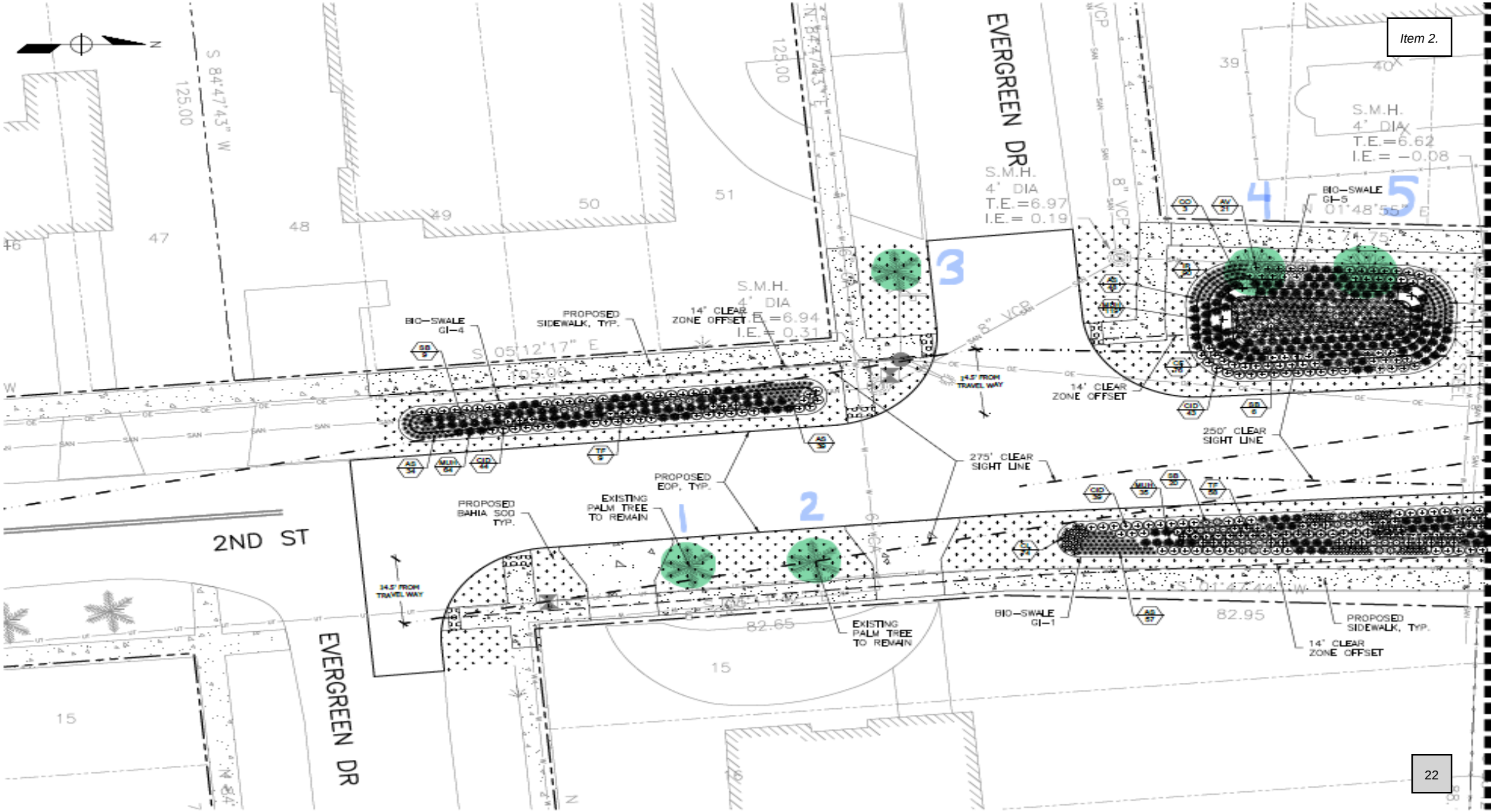
FPL

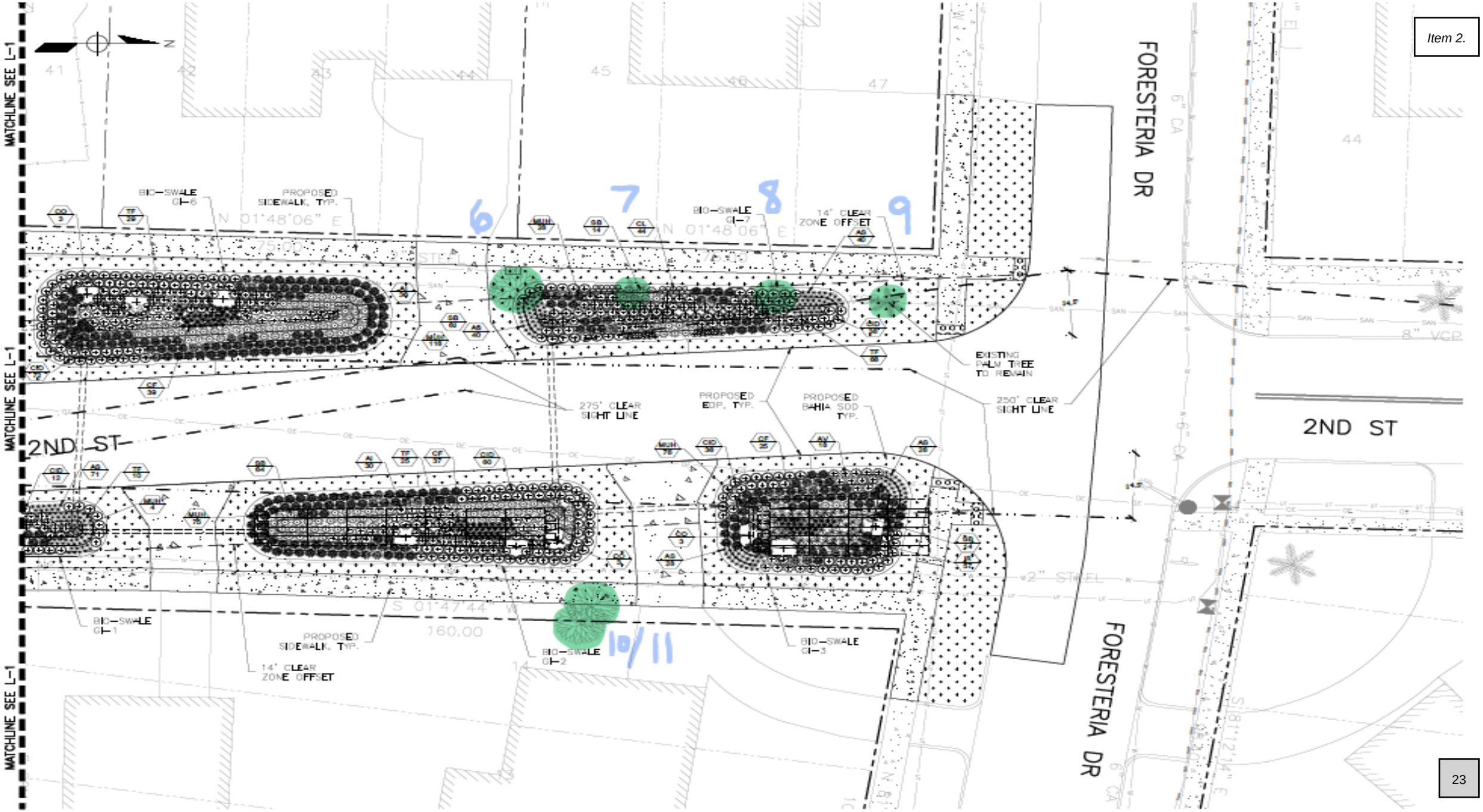
- **Ground Cover:** No closer than 5 feet to utility structure
- **Small/Medium Trees & Palm Trees:** No closer than 10 feet to utility structure
- **Large Trees:** No closer than 15 feet to utility structure



Existing Canopy Tree/Palm Tree Conflicts

- Canopy Trees in project area: **5** | Palm Trees in project area: **6**
- All **(11)** trees/palm trees in project area are unpermitted
- All **(11)** trees/palm trees are within the FDOT-mandated Clear Zone
- There is a significant presence of water/wastewater service lines and other structures necessitate removal of these **(11)** trees/palm trees
- Planned coordination with public property owners to relocate trees onto private property, where desired and possible, during project implementation
- New street trees may be included in Bioswale design for other locations, depending on compliance with Clear Zone/Set Back criteria.


EVERGREEN DR
2ND ST
EVERGREEN DR
S 84°47'43" W
125.00
N 84°47'43" E
125.00
S 05°12'17" E
125.00
S 01°47'44" W
82.65
S 01°47'44" W
82.95
S.M.H.
4' DIA
T.E.=6.97
I.E.= 0.19
S.M.H.
4' DIA
T.E.=6.94
I.E.= 0.31
S.M.H.
4' DIA
T.E.=6.62
I.E.= -0.08
BIO-SWALE
GI-4
PROPOSED
SIDEWALK, TYP.
14' CLEAR
ZONE OFFSET
BIO-SWALE
GI-5
14' CLEAR
ZONE OFFSET
250' CLEAR
SIGHT LINE
275' CLEAR
SIGHT LINE
PROPOSED
EOP, TYP.
PROPOSED
BAHIA SOD
TYP.
EXISTING
PALM TREE
TO REMAIN
EXISTING
PALM TREE
TO REMAIN
BIO-SWALE
GI-1
PROPOSED
SIDEWALK, TYP.
14' CLEAR
ZONE OFFSET
14.5' FROM
TRAVEL WAY
14.5' FROM
TRAVEL WAY
1
2
3
4
5
39
40
47
48
49
50
51
46
15
15


MATCHLINE SEE L-1
MATCHLINE SEE L-1
MATCHLINE SEE L-1
FORESTERIA DR
FORESTERIA DR
2ND ST
2ND ST
BIO-SWALE GI-6
PROPOSED SIDEWALK, TYP.
BIO-SWALE GI-7
14' CLEAR ZONE OFFSET
EXISTING PALM TREE TO REMAIN
250' CLEAR SIGHT LINE
275' CLEAR SIGHT LINE
PROPOSED EOP, TYP.
PROPOSED BAHIA SOD TYP.
BIO-SWALE GI-1
PROPOSED SIDEWALK, TYP.
14' CLEAR ZONE OFFSET
BIO-SWALE GI-2
BIO-SWALE GI-3
6
7
8
9
10/11
N 01°48'06" E
S 01°47'44" W
160.00
8" VCP
12" STEEL

Project Landscape Renderings

NICOLE PLUNKETT, ASLA, PLA, AICP

CROSS SECTION - LOCATION 105+00.00

PLANT PALETTE |

BUTTONBUSH

DWARF COCOPLUM

WIREGRASS

SAND CORDGRASS

SWAMP MILKWEED

CANNA LILY

CHALKY BROOMSEDGE BLUESTEM

BLUE FLAG IRIS

LEAVENWORTH'S TICKSEED

MUHLY GRASS

DWARF FAKAHATCHEE GRASS

BIOSWALE / RAIN GARDEN

BIOSWALE / RAIN GARDEN

BIOSWALE / RAIN GARDEN

BIOSWALE / RAIN GARDEN

Implementation Timeline & Next Steps

ROBERTO TRAVIESO

Project Implementation Timeline

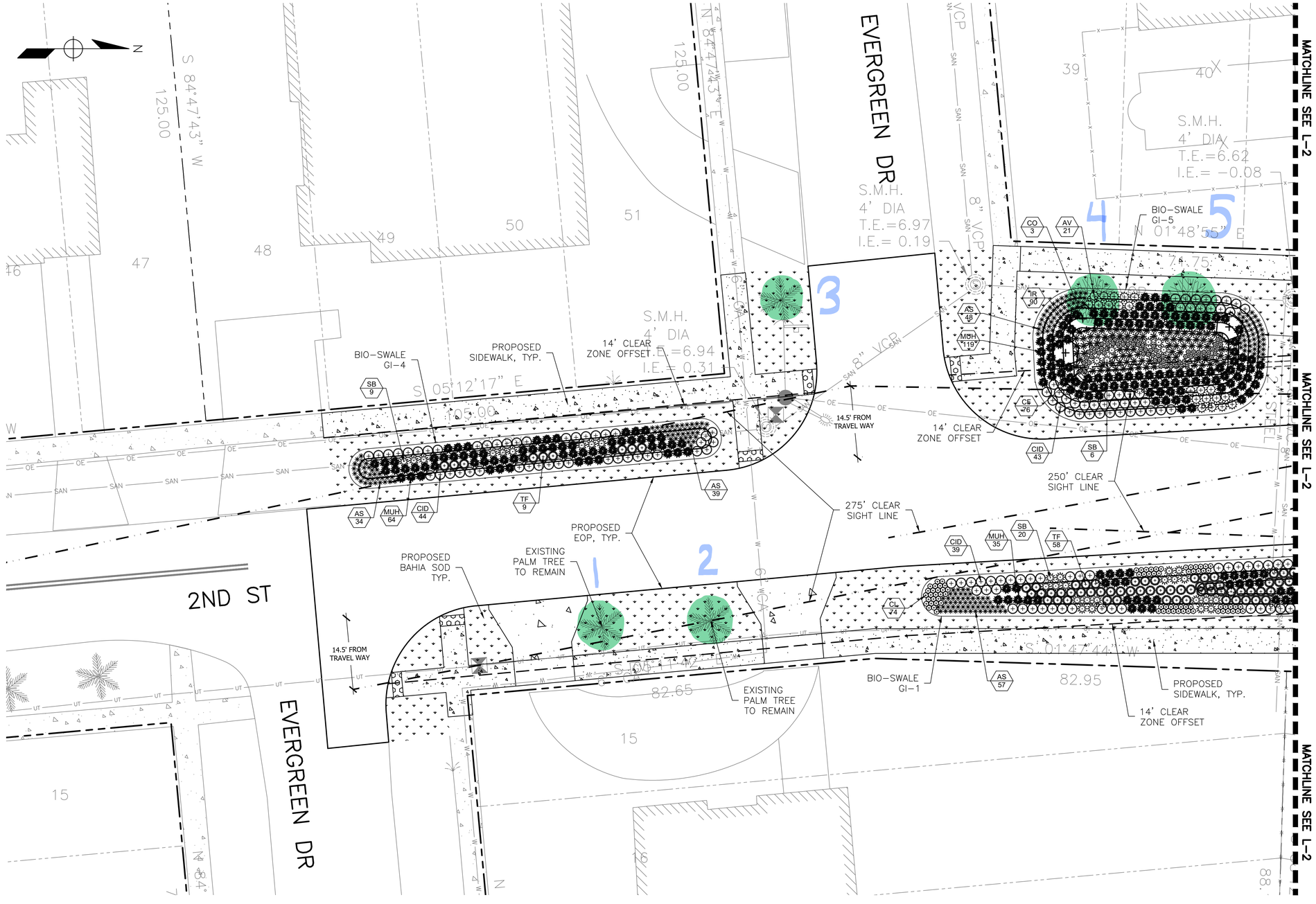
- **Design & Bidding (Design partially funded by FDEP Coastal Partnership Initiative Grant)**
  - 100% Design Plans & Specifications: November 2022
  - Final Regulatory Permits: December 2022
  - Bidding Advertisement: February 2023
  - Contractor Selection: March – April 2023
  - Contract Negotiations: May – June 2023
- **Construction (Funded by Resilient Florida Grant)**
  - Mobilization/Start Up: July 2023
  - Completion/Close Out: July 2024

Questions

PROJECT NO. G0040126	SHEET 34 OF 38

GENERAL NOTES:

1. 14.5' CLEAR ZONE OFFSET PER FLORIDA GREEN BOOK, 2022 EDITION, TABLE 4–1
2. CLEAR SIGHT LINE DISTANCES PER FLORIDA GREEN BOOK, 2022 EDITION, FIGURE 3–19 AND 3–20.
3. DESIGN SPEED = 25 MPH
4. A 3' BAHIA SOD STRIP IS PROOPOSED BETWEEN THE EOP AND BIO–SWALE PLANTINGS AND BETWEEN THE FRONT OF SIDEWALK AND BIO–SWALE PLANTINGS.
5. SEE SHEET L–3 FOR LANDSCAPE SPECIFICATIONS AND PLANTING DETAILS.
6. SEE SHEET E–2 FOR TREE PROTECTION FENCING DETAIL.



LEGEND:

- PROP. 4" THICK CONCRETE
- PROP. 6" THICK CONCRETE
- PROP. BAHIA SOD RESTORATION

100% DESIGN

NO.	DESCRIPTION	BY	DATE

REVISIONS

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS

STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

LANDSCAPING PLAN
SHEET 1
LANDSCAPING

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	10/13/2022	RECOMMENDED	
CADD FILE	LPSWE–L001–1		

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
640 OLD DIXIE HWY
LAKE PARK, FL 33403
PHONE: (561) 881–3345
FAX: (561) 881–3349

WRMA
WATER RESOURCES MANAGEMENT ASSOCIATES, INC.
250 TEQUESTA DRIVE, SUITE 302, TEQUESTA, FL 33469
PHONE: 561–529–2075 | FAX: 561–401–9385

Cotleur & Hearing
1934 Commerce Lane · Suite 1 · Jupiter · Florida · 33458
561-747-6336 · Fax 561-747-1377 · Lic.# LC-C000239

10 0 10 20 FT
SCALE: 1"=10'

REDUCTION VERIFICATION SCALE 0 10 INCHES

L–1

PROJECT NO. G0040126	SHEET 35 OF 38

GENERAL NOTES:

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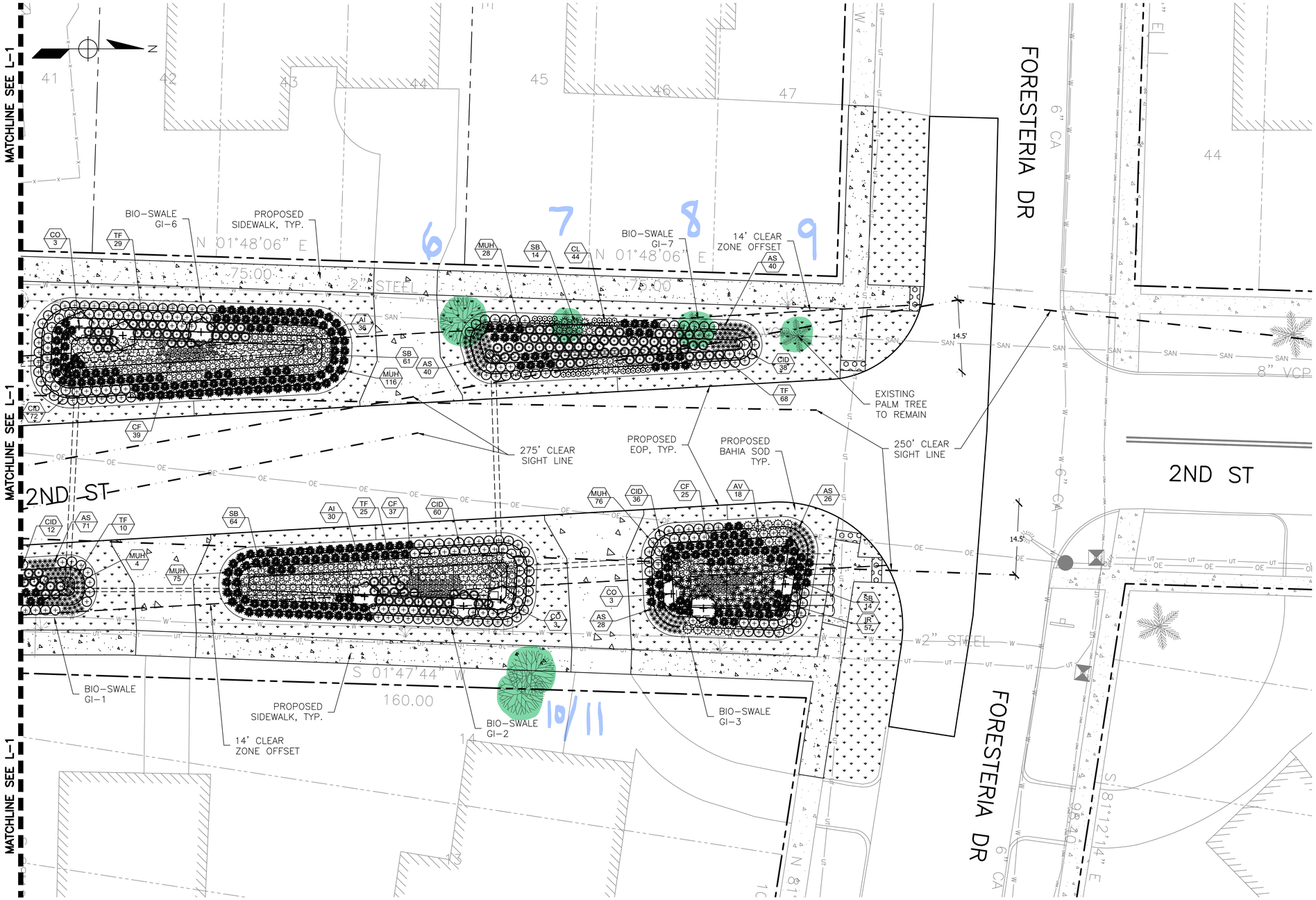

LEGEND:

- PROP. 4" THICK CONCRETE
- PROP. 6" THICK CONCRETE
- PROP. BAHIA SOD RESTORATION

100% DESIGN

NO.	DESCRIPTION	BY	DATE

REVISIONS

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS

STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

LANDSCAPING PLAN
SHEET 2
LANDSCAPING

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	10/13/2022	RECOMMENDED	
CADD FILE	LPSWE–L002–1		

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
640 OLD DIXIE HWY
LAKE PARK, FL 33403
PHONE: (561) 881–3345
FAX: (561) 881–3349

WRMA
WATER RESOURCES MANAGEMENT ASSOCIATES, INC.
250 TEQUESTA DRIVE, SUITE 302, TEQUESTA, FL 33469
PHONE: 561–529–2075 | FAX: 561–401–9385

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DIAL 811

10 0 10 20 FT
SCALE: 1"=10'

REDUCTION VERIFICATION SCALE 0 10 INCHES

L–2

PLOT DATE: 10/13/2022 9:01 AM
DWG FILE: F:\PROJECTS ACTIVE\22-0308 TOWN OF LAKE PARK 2ND STREET BIOSWALE\CAD_SITE AND LANDSCAPE\1.1 DESCRIPTION 20YY_MM_DD\ONEDRIVE_2022-08-29\20220810 COTLEUR AND HEARING\LPSWE-L002-1.DWG

PROJECT LOCATION: 2nd Street (Foresteria Drive to Evergreen Drive), map of project location attached.

PROJECT BACKGROUND: The interconnected channel and pond routing (ICPR4) H&H model developed for the Town's SWMP was used to perform hydrodynamic modeling of the rainfall/runoff process occurring throughout the watersheds. Hydrologic simulations were performed for three-year/24-hour, 10-year/24-hour, 25-year/three-day, 50-year/three-day and 100-year/three-day storm events. Results illustrate that the interconnected system of reinforced concrete pipes (RCP), corrugated metal pipes (CMP) and high-density polyethylene (HDPE) pipes do not have the capacity to convey runoff from mostly impervious dense urban areas for storm events of significance (greater than three-year frequency). Furthermore, there is localized flooding in areas (such as along 2nd Street) that do not possess a dedicated storm sewer system. This modeling aligns with real-world detrimental impacts that the Town is already experiencing.

The need is further demonstrated by the implications set forth as the result of projected climate change-based sea-level rise (SLR) by the United States Army Corps of Engineers (USACE). The change in SLR between 2019 and 2060 is estimated by USACE to be 36 inches. This corresponds to a 2060 average high tide of 2.7 feet NAVD. Once this occurs, preliminary ICPR4 H&H modeling (coded to reflect SLR of 2.7 feet) indicates that the problems being experienced today will grow in severity along the 60-inch trunk storm sewer and the 2nd Street vicinity, meaning that any drainage occurring along 2nd Street will not be able to enter the Southern Outfall by sheet flow or by pipe.

The roadside bioswales will serve two functions:

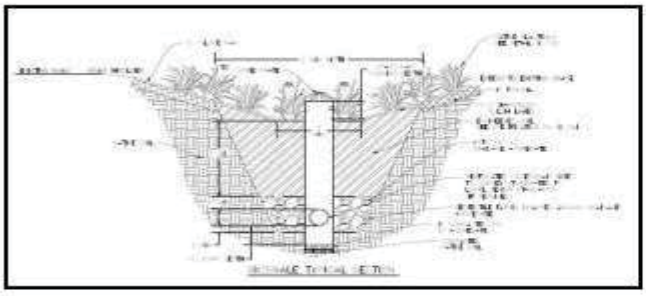
1. They will act to significantly mitigate pollutant-laden storm water runoff that otherwise would flow into the LWL and act as a natural filtration system to reduce total suspended solids.

2. They will reduce the centrality of the Southern Outfall 60-inch trunk-line pipe by diverting upstream storm water runoff sheet flow away from the main storm sewer trunk and to the underground water table aquifer, which will also introduce more resiliency into the storm water infrastructure system.

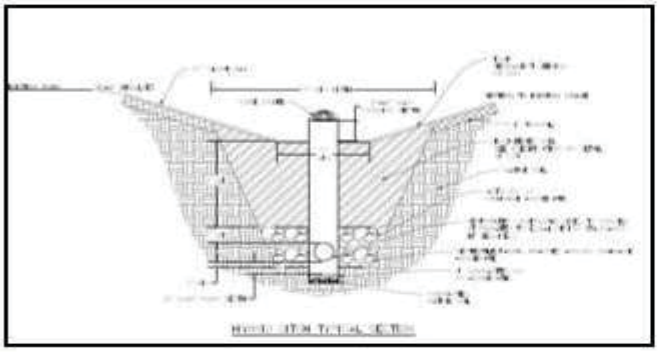
The 2nd Street project is a component of the 20-year long-term 5% Roadside Bioswale Plan that will ensure adequate resiliency and sustainability for a minimum of approximately 75% of its total land area.

PROJECT DESCRIPTION: The proposed project entails the strategic placement of roadside bioswales at two locations on 2nd Street where flooding has been documented, including 2nd Street and Foresteria Drive, and 2nd Street and Evergreen Drive. The overall goal of the project is to intercept and collect sheetflow at its source along the 2nd Street right-of-way in the vicinity of the road and prevent runoff from entering the Southern Outfall trunk (via sheet flow to inlets). Instead, the bioswales will function to intercept runoff for filtration to the water table aquifer and reduce runoff volumes through evaporation and transpiration.

Example Roaside Bio-Swales



Bioswale with Planting



Bioswale with no planting

The proposed project has two primary objectives:

1. Access the physical conditions of the topography and the soil's infiltration rates at the two affected sites (see aforementioned site locations) and the feasibility of two types of bioswale designs to direct runoff production to the groundwater table via infiltration and deep percolation and deliver untreated runoff flows that otherwise would enter the Southern Outfall via sheet flow and be transferred to the Lake Worth Lagoon. The proposed roadside GI-based bioswales will also address the increasing adverse impact of higher climate change-based rainfall intensity volumes.

2. Mitigate pollutant-laden runoff load discharge to the Lake Worth Lagoon by providing water quality treatment and infiltration of runoff to the underground aquifer.

In order to achieve these objectives, this project will focus on data collection and management and the engineering design and specifications for the bio-swales, culminating in construction documents and bid package for implementation.

TASKS and DELIVERABLES:

Task #1: Data Collection and Management

Task Description: The Grantee will work with Water Resources Management Associations, Inc. (WRMA), which is currently under a five-year contract with the Town. WRMA will perform topographic surveys at the two proposed sites. WRMA will also secure the services of a geotechnical engineering firm for the acquisition of the soil's physical properties data via shallow augers and/or shallow piezometer wells. This data is necessary to perform drainage infiltration analysis and determine the size of the required bioswale media for treatment of local runoff. The picture below shows the location of proposed field testing. The testing scope of work includes:

- Two (2) borehole permeability/percolation tests, usual open hole, constant head test to be performed on grassed swale areas along 2nd Street. One will be located at the southeast corner of 2nd Street and Foresteria Drive, and a second at the southwest corner of 2nd Street and Evergreen Drive.
- Two (2) 10ft deep Standard Penetration Test (SPT) borings will be performed in grassed swale areas adjacent to the previous permeability tests for minimal disruption.
- Two (2) 10ft Standard Penetration Test (SPT) borings with pavement coring reporting format. These will be performed at the intersections of 2nd Street and Foresteria Drive, and 2nd Street and Evergreen Drive.

None of these field tests will be performed in environmental sensitive areas and will not require the use of any chemical pollutants.

Deliverables: Data Collection and Management Technical Report

Task #2: Preliminary Engineering Design and Planning (30% Plans)

Task Description: The Grantee will work with a professional engineer and certified floodplain management professional from WRMA that will apply the topographic and soils project data, combined with H&H design tools, to perform design plans and specifications for the two sites. WRMA will review the collected data and create 30% plans for the addition of GI-based bioswales at the two sites. This level of design entails the development of preliminary conceptual design options that could be implemented at the site depending upon major site constraints.

Deliverables: 30% Design Plans

Task #3: Engineering Design and Site Layout (60%)

Task Description: The Grantee will build upon the previous task to include the selection of the final bioswale placement at the two locations, include the type of, bioswales selected (bioswale with or without plantings), and any required adjustments to the road (edge of pavement, driveways, etc.).

Deliverables: 60% Design Plans and Quantity Takeoff Cost Estimate

Task #4: Detailed Engineering Design (90%)

Task Description: The Grantee will build upon the previous two tasks to include the preparation of design specifications and preliminary construction-ready plans. The design will also include the preparation of the project technical manual and a detailed engineer's opinion of probable cost.

Deliverables: 90% Design Plans and Engineer's Opinion of Probable Cost

Task #5: Final Plans and Specifications (100%)

Task Description: The Grantee will complete the design plans in preparation of the final design plans (ready for bidding/construction). Grantee will summarize project with a final report utilizing Exhibit F format.

Deliverables: 100% Final Ready For Construction Design Plans and Specifications, and Final Engineer's Opinion of Probable Cost. Final Report of project.

Performance Standard: The Department's Grant Manager will review the deliverables to verify that they meet the specifications in the Grant Work Plan and the task description. Upon review and written acceptance by the Department's Grant Manager of all deliverables under this task, the Grantee may proceed with payment request submittal.

Payment Request Schedule: Grantee may submit a payment request for cost reimbursement upon completion of each task and Department approval of all associated task deliverables.

PROJECT TIMELINE: The tasks must be completed by the corresponding task end date and all deliverables must be received by the designated due date.

Task No.	Task or Deliverable Title	Deliverable Due Date
1	Data Collection and Management	10/31/2021
2	Pre-Liminary Engineering and Planning (30% Plans)	01/31/2022
3	Engineering Design and Site Layout (60% Plans)	04/30/2022
4	Detailed Engineering Design (90% Plans)	07/31/2022
5	Final Plans and Specifications (100% Plans)	08/31/2022

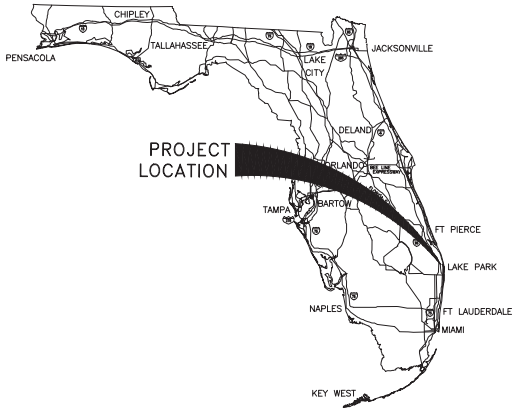
BUDGET DETAIL BY TASK:

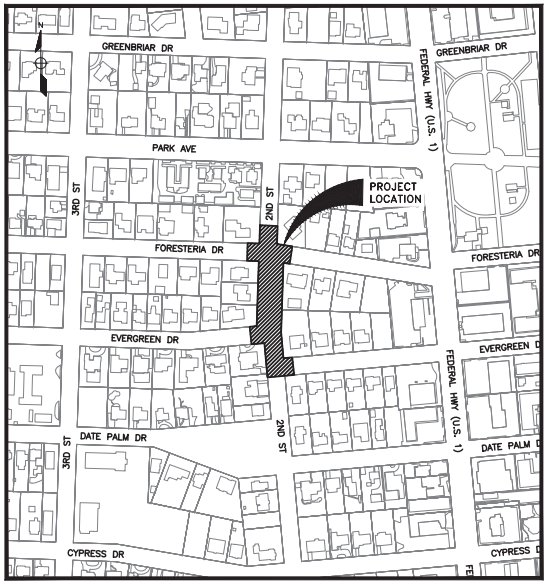
Categories	Task 1	Task 2	Task 3	Task 4	Task 5	Totals
Contractual Services	$10,000	$4,000	$10,000	$2,000	$4,000	**$30,000**
Match Total	$10,000	$4,000	$10,000	$2,000	$4,000	**$30,000**
Total	**$20,000**	**$8,000**	**$20,000**	**$4,000**	**$8,000**	**$60,000**

PROJECT BUDGET SUMMARY: Cost reimbursable grant funding must not exceed the category totals for the project as indicated below. Match funding shall be provided in the categories indicated below.

Category Totals	Grant Funding Not to Exceed	Match Funding	Total Project Funding
Contractual Services Total	$30,000	$30,000	$60,000
Total:	**$30,000**	**$30,000**	**$60,000**

PROJECT NO. G0040126 | SHEET 01 OF 36





SITE LOCATION MAP
SCALE: 1" = 200'

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS

MAYOR MICHAEL O'ROURKE
VICE- MAYOR KIMBERLY GLAS-CASTRO
COMMISSIONER ERIN FLAHERTY
COMMISSIONER JOHN LINDEN
COMMISSIONER ROGER MICHAUD

CONTRACT DRAWINGS FOR

DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

AUGUST 2022
100% DESIGN

100% DESIGN

NO.	DESCRIPTION	BY	DATE

REVISIONS

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

COVER SHEET

GENERAL

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	8/8/2022	RECOMMENDED	
CADD FILE	LPSWE-G001		

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
640 OLD DIXIE HWY
LAKE PARK, FL 33403
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FAX: (561) 881-3349

WRMA
WATER RESOURCES MANAGEMENT ASSOCIATES, INC.
250 TEQUESTA DRIVE, SUITE 302, TEQUESTA, FL 33469
PHONE: 561-529-2075 | FAX: 561-401-9385

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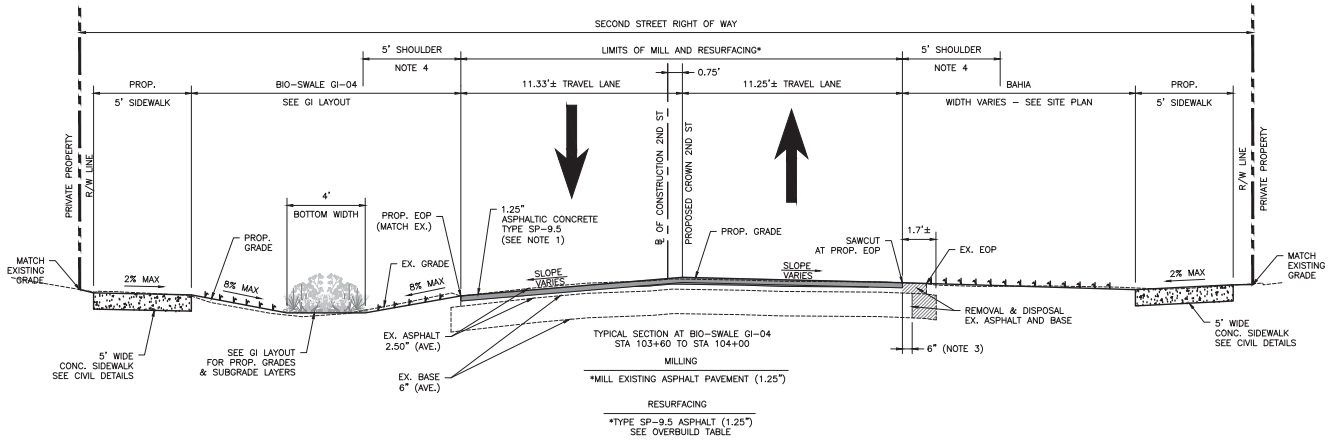
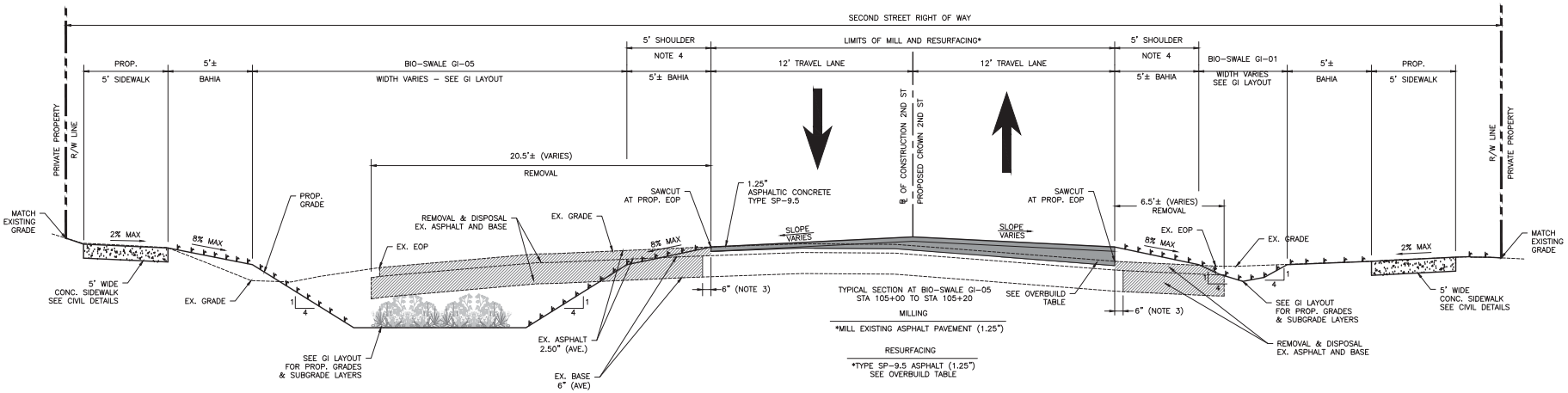
PROJECT NO. G0040126 | SHEET 05 OF 36





GENERAL NOTES:

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5. ALL STRIPING AND DELINEATION TO CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITION.
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PHONE: 561-529-2075 | FAX: 561-401-9385

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NO.	DESCRIPTION	BY	DATE

REVISIONS

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS

STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

TYPICAL SECTIONS
SHEET 1
CIVIL

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	8/8/2022	RECOMMENDED	
CADD FILE	LPSWE-C001		

REDUCTION VERIFICATION SCALE 0 10 INCHES

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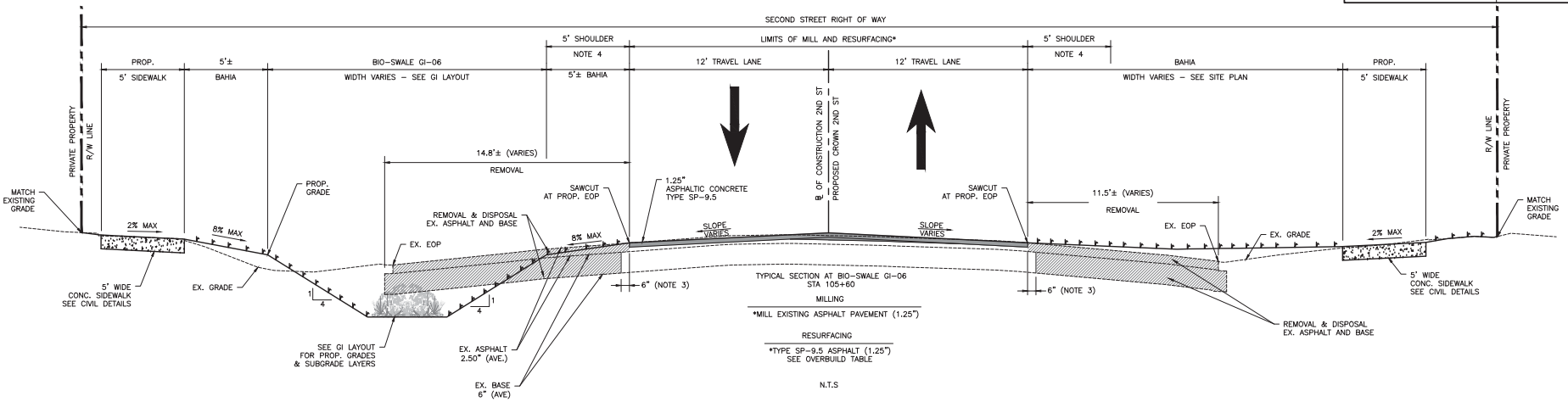

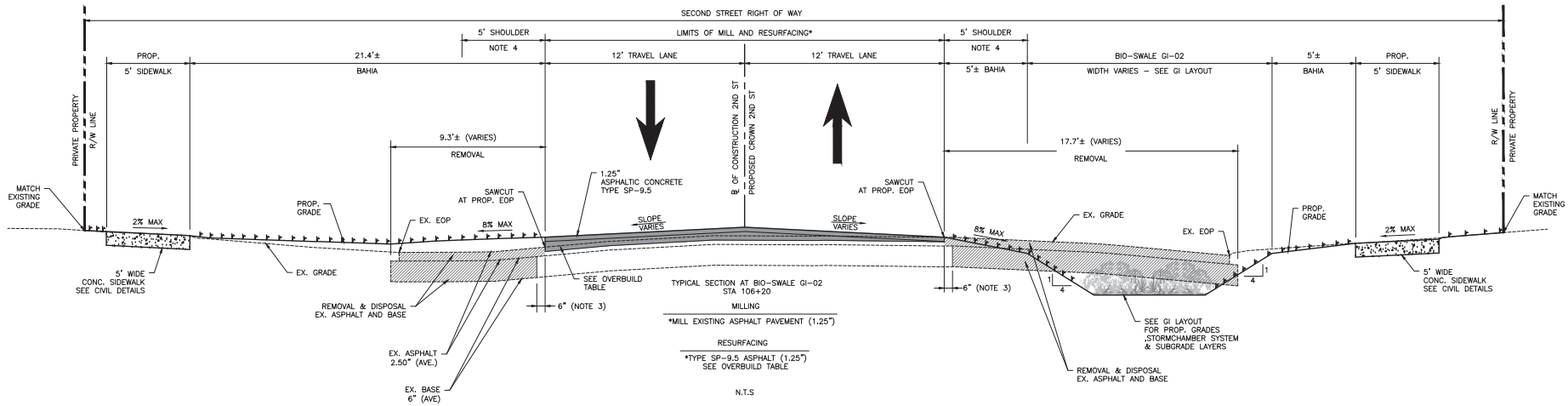

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TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS

STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

TYPICAL SECTIONS
SHEET 2
CIVIL

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	8/8/2022	RECOMMENDED	
CADD FILE	LPSWE-C002		

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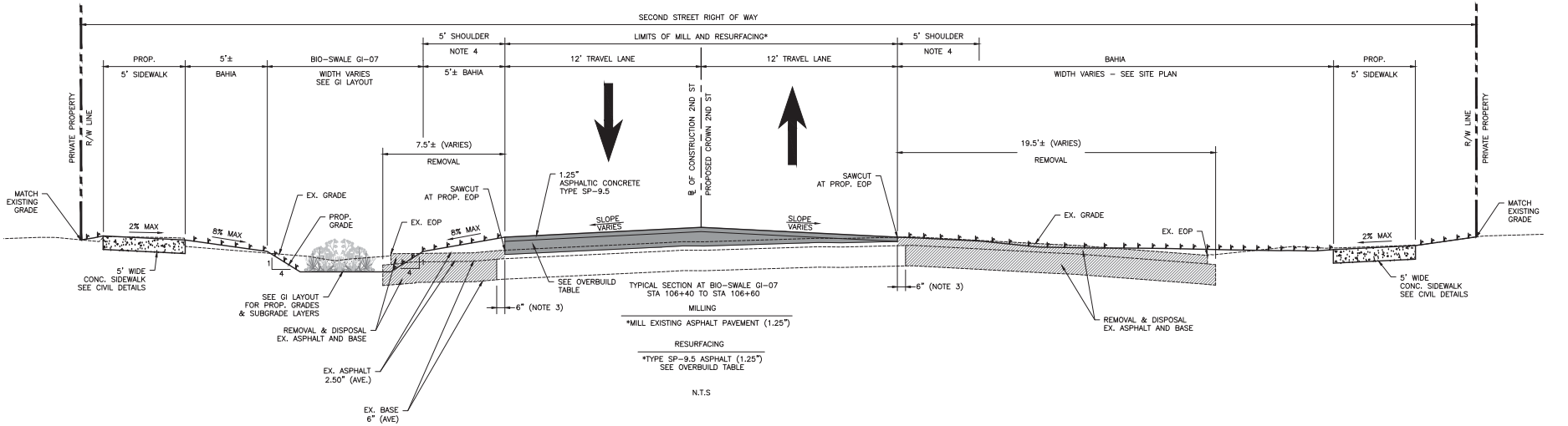

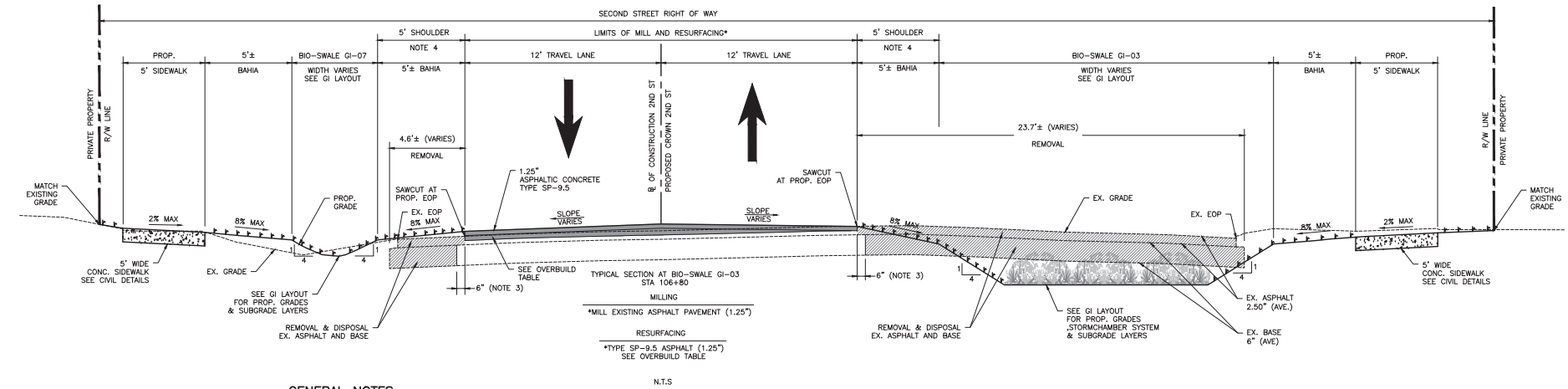

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REVISIONS

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

TYPICAL SECTIONS
SHEET 3
CIVIL

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	8/8/2022	RECOMMENDED	
CADD FILE	LPSWE-C003		

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C-3

PLOT DATE: 8/8/2022 1:03 PM
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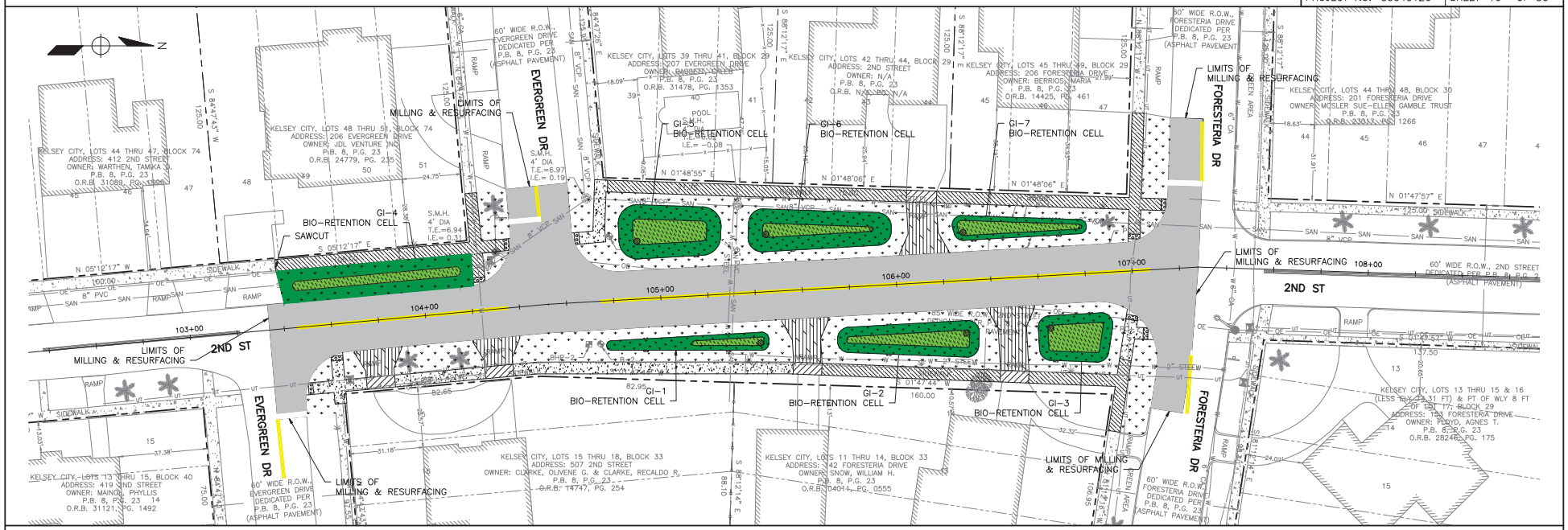
PROJECT NO. G0040126 | SHEET 16 OF 36



GENERAL NOTES:

1. ALL ELEVATIONS WHERE SHOWN REFERENCE VERTICAL DATUM NAVD 88 AND NAD 83 FLORIDA EAST ZONE HORIZONTAL DATUM.
2. LOCATIONS OF EXISTING BURIED UTILITIES ARE SHOWN AS APPROXIMATE. CONTRACTOR SHALL PERFORM FIELD LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION PRIOR TO START OF CLEARING AND DEMOLITION OF EXISTING STRUCTURES OR PAVEMENT. CALL SUNSHINE 811 48 HOURS PRIOR TO MOBILIZATION OR EXCAVATION ON SITE.
3. ACCESS EXISTING DRAINAGE AND UTILITY EASEMENTS AS NECESSARY FOR ACCESS TO STORMWATER AND UTILITIES LINES.
4. ALL STRIPING AND DELINEATION TO CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITION.
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12. FIRE HYDRANT RELOCATION SHALL BE COORDINATED AND COMPLETED BY THE TOWN OF LAKE PARK IN CONJUNCTION WITH SEACOAST UTILITIES PRIOR TO CONSTRUCTION.
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EXISTING FEATURES LEGEND

x18.10	EXISTING SPOT ELEVATION
W	WATER
GAS	GAS
GAS	GAS ABANDONED
UE	UNDERGROUND ELECTRIC
OE	OVERHEAD ELECTRIC
IR	IRRIGATION
STM	STORMWATER
SAN	SANITARY GRAVITY SEWER
FM	SANITARY FORCE MAIN
UT	UNDERGROUND TELEPHONE
OT	OVERHEAD TELEPHONE
UT	UNDERGROUND TELEPHONE
COMM	UNDERGROUND COMMUNICATION
UF	UNDERGROUND FIBER OPTICS
TOB	TOP OF BANK
TOE	TOE OF BANK
X	FENCE
SF	SILT FENCE
UDS	UNDER DRAIN SOLID
UDP	UNDER DRAIN PERFORATED
	STORMWATER CATCH BASIN
D	STORMWATER MANHOLE
E	ELECTRICAL MANHOLE
S	SANITARY MANHOLE
T	TELECOMMUNICATIONS MANHOLE
W	WATERMAIN ACCESS MANHOLE
	LIGHT POLE
ME	METER WATER/ELECTRIC
GV	GATE VALVE
BF	BACKFLOW PREVENTER
GU	GAS UTILITY VALVE
GI	GAS INSTRUMENTATION
C	CABLE HANDHOLE
	STREET/STOP SIGN
	HYDRANT

LEGEND:

- PROP. SWALE
- PROP. BIORETENTION MEDIA
- PROP. RESURFACED ASPHALT ROADWAY
- PROP. 4" THICK CONCRETE REMOVE & REPLACE
- PROP. 4" THICK CONCRETE NEW CONSTRUCTION
- PROP. 6" THICK CONCRETE SIDEWALK
- PROP. 6" THICK CONCRETE DRIVEWAY
- PROP. GRASS RESTORATION

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100% DESIGN

NO.	DESCRIPTION	BY	DATE

REVISIONS

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
STORMWATER IMPROVEMENT PROGRAM – DIVISION E
SECOND STREET GREEN INFRASTRUCTURE

PROPOSED GREEN INFRASTRUCTURE
BIO-SWALE PLAN
CIVIL

SCALE	AS SHOWN	DRAWN	MRM
CLIENT ID	G004	CHECKED	RMM
CONTRACT ID	G00401	SUBMITTED	WRMA
SURVEYED	JEBA		
DATE	8/8/2022	RECOMMENDED	
CADD FILE	LPSWE-C012		

TOWN OF LAKE PARK
DEPARTMENT OF PUBLIC WORKS
640 OLD DIXIE HWY
LAKE PARK, FL 33403
PHONE: (561) 881-3345
FAX: (561) 881-3349

WRMA
WATER RESOURCES MANAGEMENT ASSOCIATES, INC.
250 TEQUESTA DRIVE, SUITE 302, TEQUESTA, FL 33469
PHONE: 561-529-2075 | FAX: 561-401-9385

20 0 20 40 FT
SCALE: 1"=20'

REDUCTION VERIFICATION SCALE 0 10 INCHES

C-12

2ND STREET
Lake Park, Florida

DEPARTMENT OF PULIC WORKS

Cotleur Hearing

CROSS SECTION - LOCATION 104+00.00

PLANT PALETTE |

BUTTONBUSH

DWARF COCOPLUM

WIREGRASS

SAND CORDGRASS

SWAMP MILKWEED

CANNA LILY

CHALKY BROOMSEDGE BLUESTEM

BLUE FLAG IRIS

LEAVENWORTH'S TICKSEED

MUHLY GRASS

DWARF FAKAHATCHEE GRASS

BIOSWALE / RAIN GARDEN

2ND STREET
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