

Siesta V Administrative Amendment (ADD2024-00060)

July 11, 2024
Resubmission Package

TIDAL FLUSHING ANALYSIS

SIESTA V TIDAL FLUSHING ANALYSIS

Revised July 2024

INTRODUCTION

This document and attached exhibits summarize the tidal flushing analysis completed for the southern portion of Siesta V (Project) along San Carlos Bay, where the proposed road and lots are depicted on the Master Concept Plan. For this analysis, this area is referred to as the study area. The analysis was conducted to examine the tidal flushing to the mangroves landward of San Carlos Bay in this location on the Project site. This analysis includes information for the study area related to existing vegetation associations, topographic data, and tidal flows.

VEGETATION ASSOCIATIONS

Vegetation mapping for the study area was completed using 2023 Lee County rectified aerials. Groundtruthing to map the vegetative communities was conducted in September 2023 utilizing the Florida Land Use, Cover and Forms Classification System (FLUCFCS) Levels III and IV (Florida Department of Transportation 1999). AutoCAD Map 3D 2024 software was used to determine the acreage of each mapping area, produce summaries, and generate the FLUCFCS map. The FLUCFCS map is attached as Sheet 1.

An area of disturbed land (FLUCFCS Code 740) runs parallel to the shoreline of San Carlos Bay on this portion of the Project site. Based on historical aerials, this disturbed area was the historical road to Fort Myers Beach. This area is currently vegetated with seagrape (*Coccoloba uvifera*), cabbage palm (*Sabal palmetto*), catclaw blackbead (*Pithecellobium unguis-cati*), and Brazilian pepper (*Schinus terebinthifolia*). These vegetation species can typically be found on uplands along the coast. Surrounding vegetation includes buttonwood (*Conocarpus erectus*), Brazilian pepper (FLUCFCS Code 7401), and mangroves (FLUCFCS Code 612). These vegetation species are typically found growing at elevations from the Mean High Water (MHW) line and above.

TOPOGRAPHIC DATA

Barraco and Associates, Inc. surveyed ground elevations within the study area in August 2023 and February and June 2024. The surveyed elevations in National Geodetic Vertical Datum of 1929 (NGVD) are shown on Sheet 2 (attached). Cross sections of the ground elevations are also provided on Sheet 2 (attached). The cross sections include the MHW line, which in this location is 1.32 feet NGVD. Also, for reference, the Mean Low Water (MLW) elevation for this location is -0.48 feet NGVD.

The ground elevations in the study area range from 1.27 feet NGVD (right around MHW) up to 4.72 feet NGVD. Based on this topographic information, there is a “ridge” along the shoreline to

San Carlos Bay. See Sheets 3A through 3C (attached) showing cross sections of the elevations in this area. The higher elevations correspond to the disturbed land (FLUCFCS Code 740) that runs parallel to the shoreline, and the lower elevations correspond to the hydric disturbed land (FLUCFCS Code 7401) and mangroves (FLUCFCS Code 621).

TIDAL FLOWS

In order to support significant tidal flows, areas of open water with bottom elevations below MLW are required. Since the ground elevations within the study area are above MLW, significant tidal flushing is not occurring along this portion of the Project site. Tidal flows within this general area occur through Estero Pass to the southeast and then into the canal system within Siesta Isles. See Sheet 4 (attached). At the nearest point, the Siesta Isles canal system has a cross-sectional area of approximately 600 square feet below MLW, which provides significant tidal flows.

SUMMARY

Based on the vegetation data, topography, and tidal flows, significant tidal flushing does not occur directly from San Carlos Bay to the mangroves in the southern portion of the Project site. As documented by the vegetation associations and topographic data, there is a ridge along the shoreline parallel to San Carlos Bay that blocks average daily tides from flowing into the mangroves in this location. Significant tidal flushing occurs through Estero Pass into the Siesta Isles canal system and then to the mangroves within the study area.

REFERENCES

Florida Department of Transportation. 1999. Florida Land Use, Cover and Forms Classification System. Procedure No. 550-010-001-a. Third Edition.

SCALE: 1" = 200'

~SAN CARLOS BAY~

P/L

P/L

P/L

P/I

7401
(0.03 Ac.±)

7401
(0.14 Ac.±)

7401
(0.42 Ac.±)

7401
(0.18 Ac.±)

8146
0.37 Ac.±)

740
(0.71 Ac.±)

↓ **612**
(3.53 Ac.±)

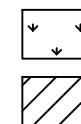
541
(7.05 Ac.±)

740
1.37 Ac.±)

~~437~~
(0.08 Ac.±)

612
(0.59 Ac.±)

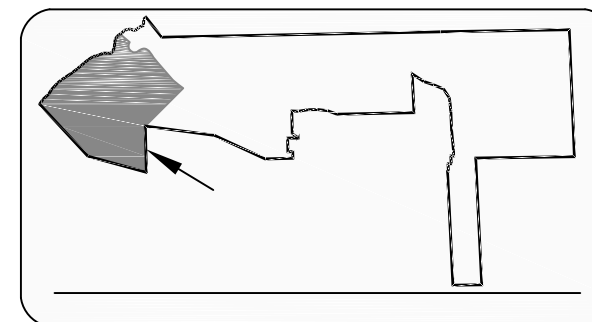
612
(0.04 Ac.±)



LEGEND:

WETLANDS

OTHER SURFACE WATERS



FLUCFCS			% OF
CODE	DESCRIPTION	ACREAGE	TOTAL
437	AUSTRALIAN PINE	0.08 Ac.±	0.3%
541	EMBAYMENT	7.05 Ac.±	27.0%
612	MANGROVES	15.76 Ac.±	60.4%
740	DISTURBED LAND	2.08 Ac.±	8.0%
7401	DISTURBED LAND, HYDRIC	0.77 Ac.±	2.9%
8146	PRIMITIVE ROAD	0.37 Ac.±	1.4%
TOTAL		26.11 Ac.±	100.0%

NOTES:

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING No. BOUNDARY FOR ZONING.dwg DATED SEPTEMBER 6, 2023.

FLUCFCS LINES ESTIMATED FROM 1"=200'
AERIAL PHOTOGRAPHS AND LOCATIONS
APPROXIMATED.

FLUCFCS PER FLORIDA LAND USE, COVER
AND FORMS CLASSIFICATION SYSTEM
(FLUCFCS) (FDOT 1985).

STATE WETLAND LINES SHOWN AS SURVEY
LOCATED BY AGNOLI, BARBER, BRUNDAGE, INC.

11/19/97 197MMPI2 (YEAR 2)	REVISIONS	DATE	DRAWN BY H.H.	DATE 05/28/24
			DESIGNED BY R.F.	DATE 05/28/24
			REVIEWED BY K.C.P.	DATE 05/28/24

13620 Metropolis Avenue
Suite 200
Ft. Myers, FL 33912
Phone (239) 274-0067
Fax (239) 274-0069



PASSARELLA & ASSOCIATES

SIESTA V - SOUTH PORTION
FLUCFCS AND WETLANDS MAP

	DRAWING No.
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97MMP121

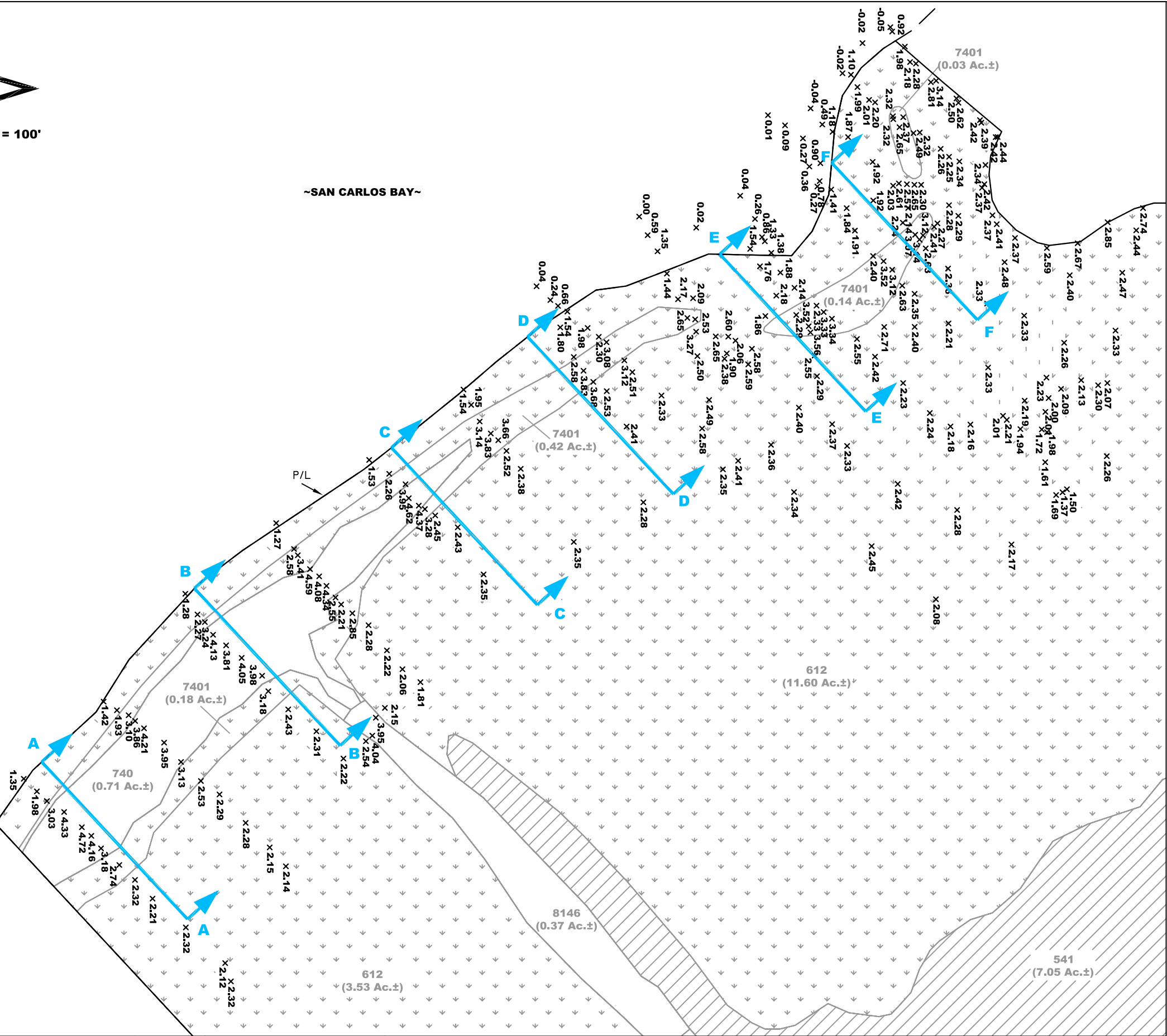
SHEET No.

SHEET 1



SCALE: 1" = 100'

~SAN CARLOS BAY~



LEGEND:



WETLANDS



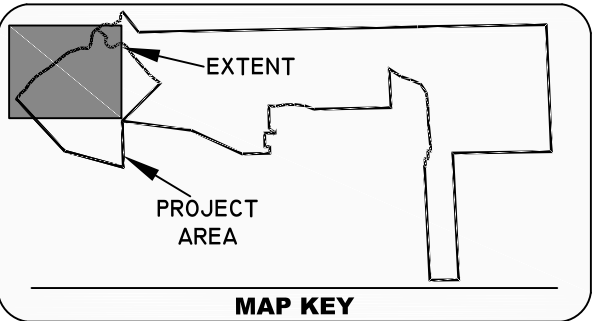
OTHER SURFACE WATERS

x 2.45

TOPOGRAPHIC ELEVATION (TYP.)



CROSS SECTIONS (TYP.)



FLUCFCS CODE	DESCRIPTION	ACREAGE	% OF TOTAL
437	AUSTRALIAN PINE	0.08 Ac.±	0.3%
541	EMBAYMENT	7.05 Ac.±	27.0%
612	MANGROVES	15.76 Ac.±	60.4%
740	DISTURBED LAND	2.08 Ac.±	8.0%
7401	DISTURBED LAND, HYDRIC	0.77 Ac.±	2.9%
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NOTES:

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING No. BOUNDARY FOR ZONING.dwg DATED SEPTEMBER 6, 2023.

FLUCFCS LINES ESTIMATED FROM 1"=200' AERIAL PHOTOGRAPHS AND LOCATIONS APPROXIMATED.

FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOT 1985).

STATE WETLAND LINES SHOWN AS SURVEY LOCATED BY AGNOLI, BARBER, BRUNDAGE, INC.

TOPOGRAPHIC ELEVATION READINGS PER BARRACO AND ASSOCIATES, INC. DRAWING No. 21352S00.dwg DATED JUNE 19, 2024.

ELEVATIONS SHOWN IN NGVD 1929.

ADD2024-00060 Lee County ePlan

REVISIONS

DATE

DRAWN BY

DATE

H.H.

05/28/24

DESIGNED BY

DATE

R.F.

05/28/24

REVIEWED BY

DATE

K.C.P.

05/28/24

13620 Metropolis Avenue
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Ft. Myers, FL 33912
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Fax (239) 274-0069



PASSARELLA
& ASSOCIATES, INC.

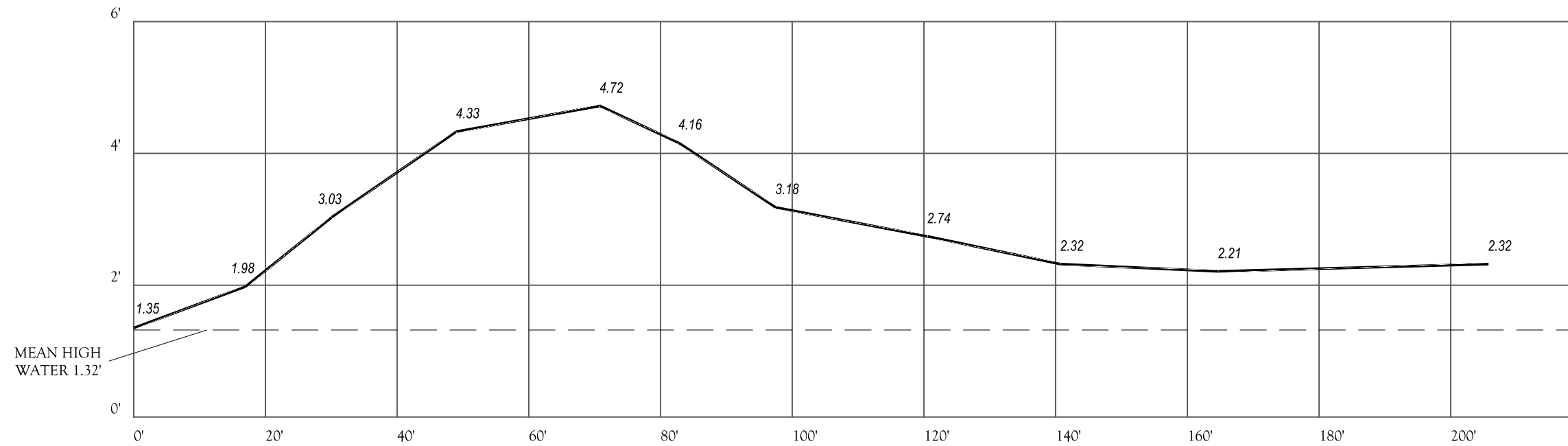
SIESTA V - SOUTH PORTION
FLUCFCS, WETLANDS, TOPOGRAPHIC ELEVATIONS
AND CROSS SECTION LOCATIONS

DRAWING No.

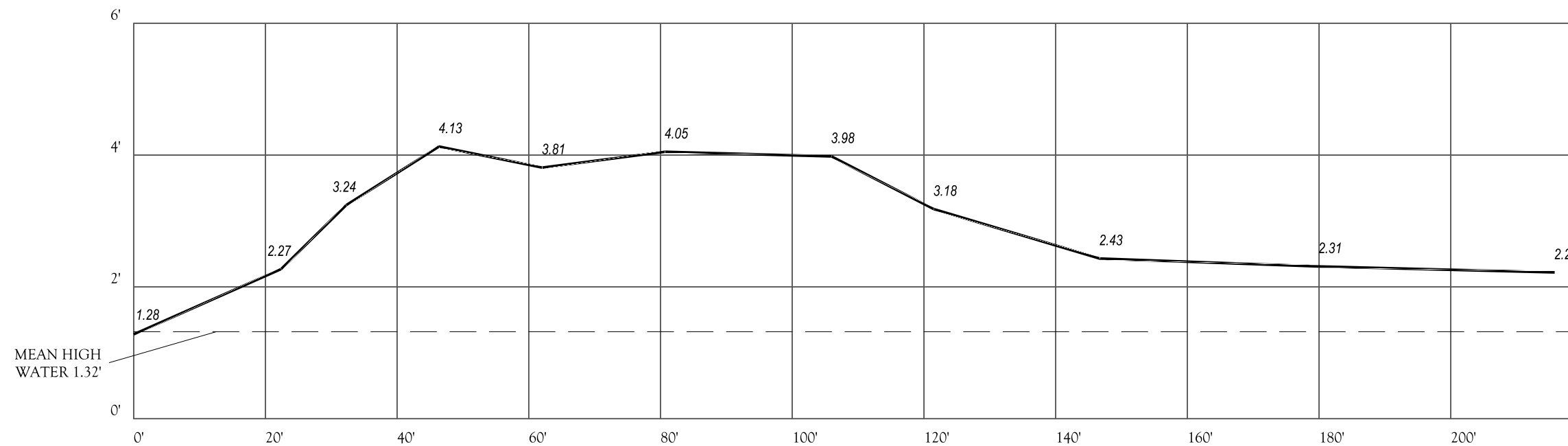
97MMP121

SHEET No.

SHEET 2



CROSS SECTION A-A



CROSS SECTION B-B

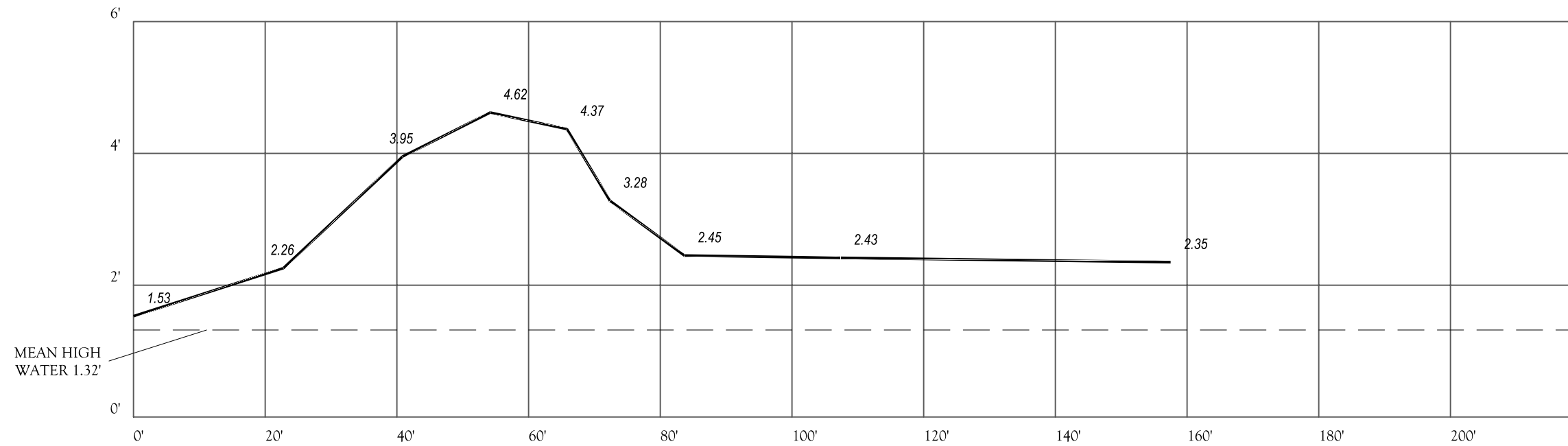
NOTES:

TOPOGRAPHIC ELEVATION READINGS PER
BARRACO AND ASSOCIATES, INC. DRAWING
No. 21352S00.DWG DATED JUNE 19, 2024.

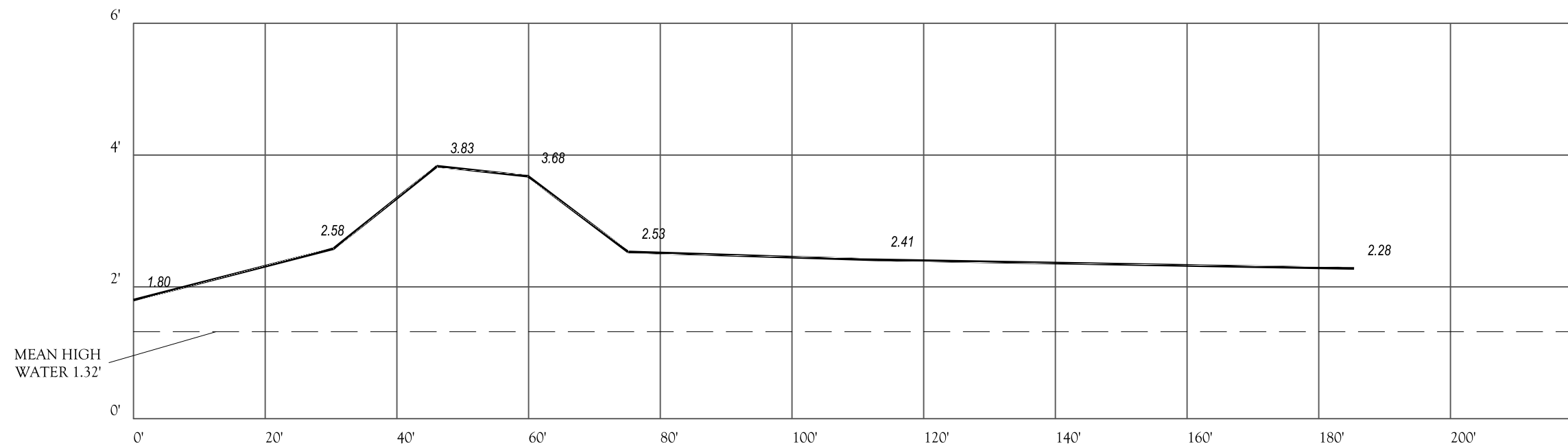
ELEVATIONS SHOWN IN NGVD 1929.

J:\1997\197MMP\12\YEAR 2024\COUNTY PLAN SETS\SHEET 3.DWG TAB: SHEET 3A JUL 10, 2024 - 3:22PM PLOTTED BY: PAULF

1/1/1997/197MMP121/VEAR	REVISIONS	DATE	DRAWN BY	DATE	13620 Metropolis Avenue Suite 200 Ft. Myers, FL 33912 Phone (239) 274-0067 Fax (239) 274-0069	 PASSARELLA & ASSOCIATES INC.	SIESTA V - SOUTH PORTION CROSS SECTIONS		DRAWING No.					
			H.H.	05/28/24					97MMP121					
			DESIGNED BY	DATE					SHEET No.					
			R.F.	05/28/24					SHEET 3A					
		REVIEWED BY	DATE											
		K.C.P.	05/28/24											



CROSS SECTION C-C



CROSS SECTION D-D

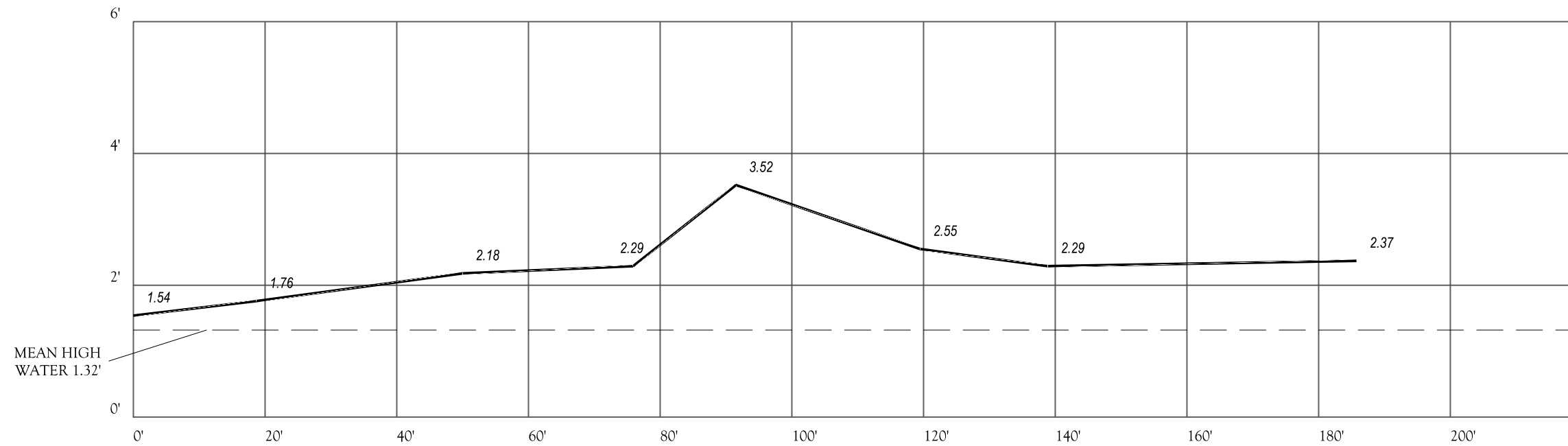
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No. 21352S00.DWG DATED JUNE 19, 2024.

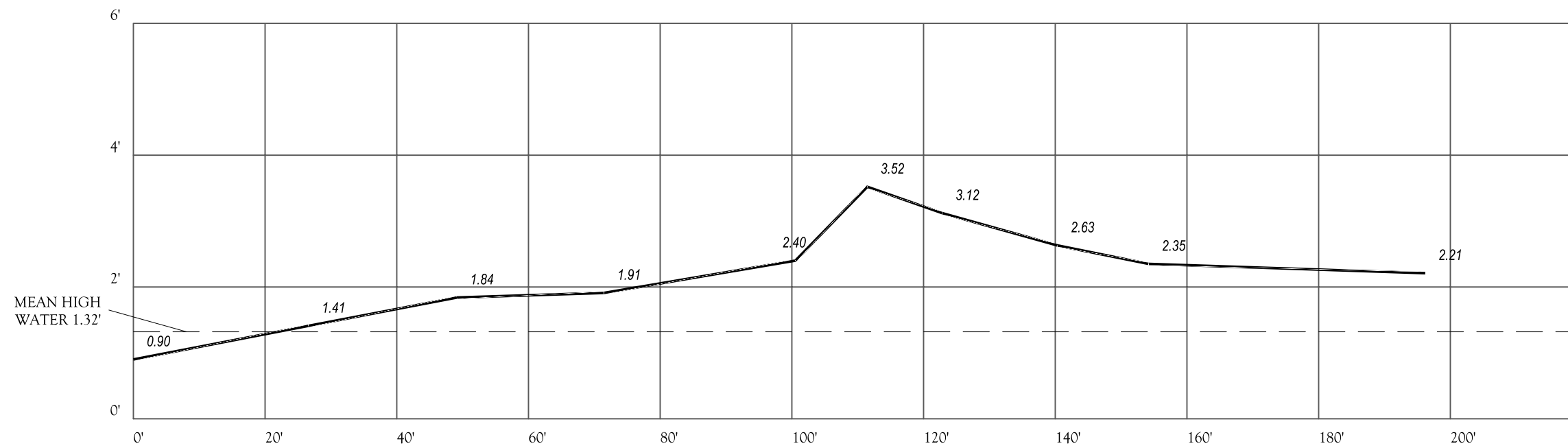
ELEVATIONS SHOWN IN NGVD 1929.

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REVISIONS	DATE	DRAWN BY	DATE	13620 Metropolis Avenue Suite 200 Ft. Myers, FL 33912 Phone (239) 274-0067 Fax (239) 274-0069	 PASSARELLA & ASSOCIATES INC.	SIESTA V - SOUTH PORTION CROSS SECTIONS	DRAWING No.
		H.H.	05/28/24				97MMP121
		DESIGNED BY	DATE				SHEET No.
		R.F.	05/28/24				SHEET 3B
		REVIEWED BY	DATE				
		K.C.P.	05/28/24				



CROSS SECTION E-E



CROSS SECTION F-F

NOTES:

TOPOGRAPHIC ELEVATION READINGS PER
BARRACO AND ASSOCIATES, INC. DRAWING
No. 21352S00.DWG DATED JUNE 19, 2024.

ELEVATIONS SHOWN IN NGVD 1929.

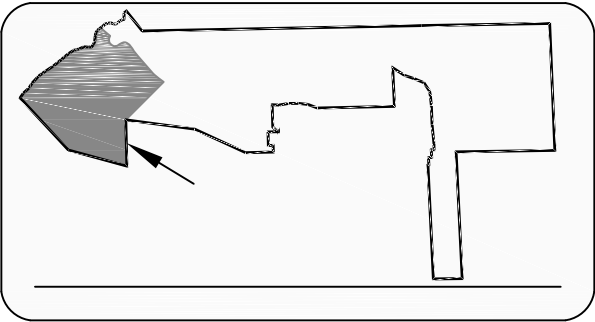
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			H.H.	05/28/24					97MMP121		
			DESIGNED BY	DATE					SHEET No.		
			R.F.	05/28/24					SHEET 3C		
			REVIEWED BY	DATE							
			K.C.P.	05/28/24							



LEGEND:

←→ TIDAL FLUSHING FLOW



NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - MARCH 2024.

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING No. BOUNDARY FOR ZONING.dwg DATED SEPTEMBER 6, 2023.

REVISIONS		DATE	DRAWN BY H.H.	DATE 05/28/24	13620 Metropolis Avenue Suite 200 Ft. Myers, FL 33912 Phone (239) 274-0067 Fax (239) 274-0069	 PASSARELLA & ASSOCIATES INC	SIESTA V - SOUTH PORTION AERIAL WITH TIDAL FLUSHING DIRECTIONS	DRAWING No.	
			DESIGNED BY R.F.	DATE 05/28/24				97MMP121	
			REVIEWED BY K.C.P.	DATE 05/28/24				SHEET No.	
								SHEET 4	

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