

Manasota Key Beach Restoration Project Update

**BOARD OF COUNTY COMMISSIONERS
APRIL 27, 2021**

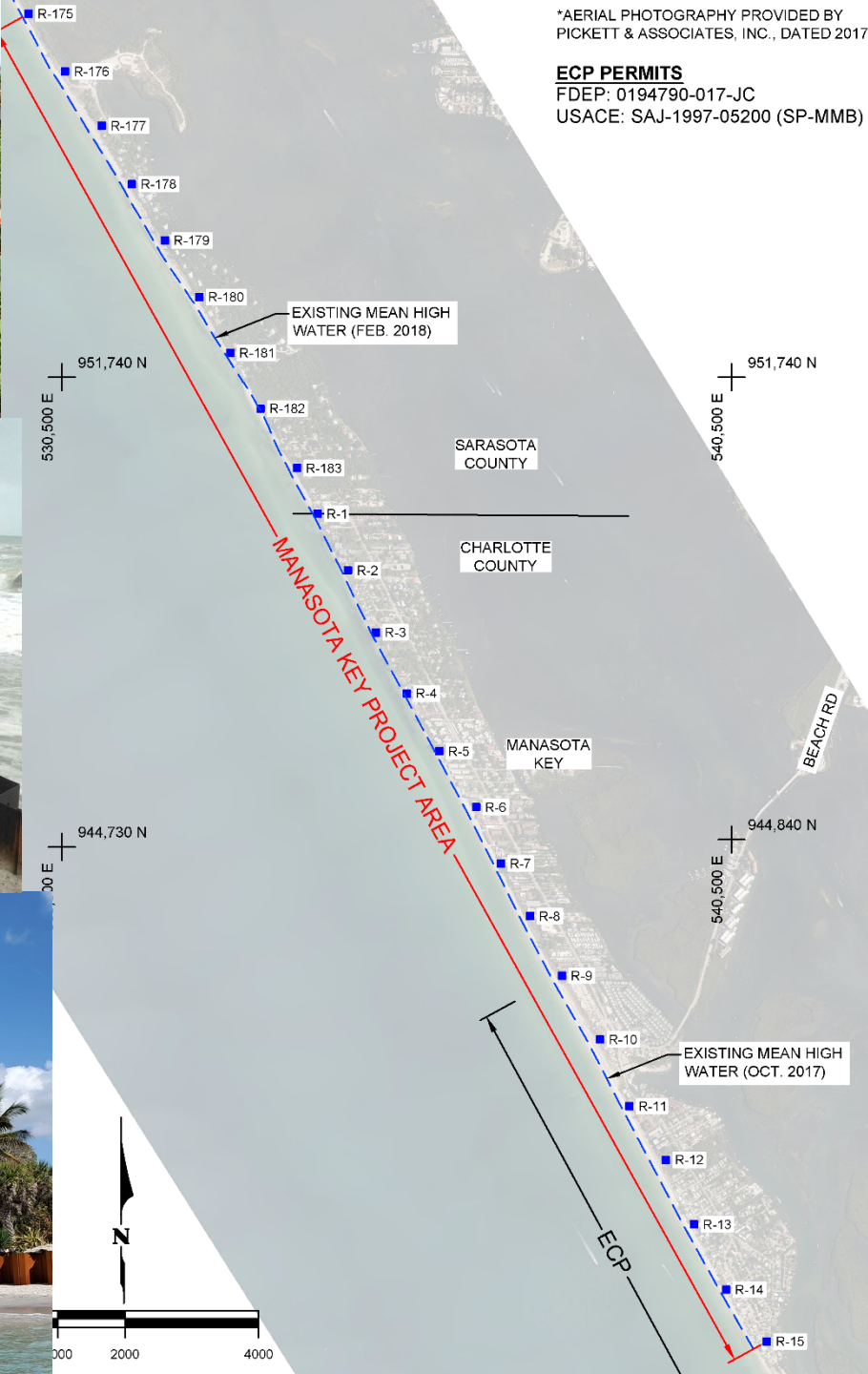


OUTLINE

- MK Project Description
- MK Photo Summary
- Post-Storm Assessment
- Beach Fill Evolution
- Mitigation Reef
- Stump Pass Update



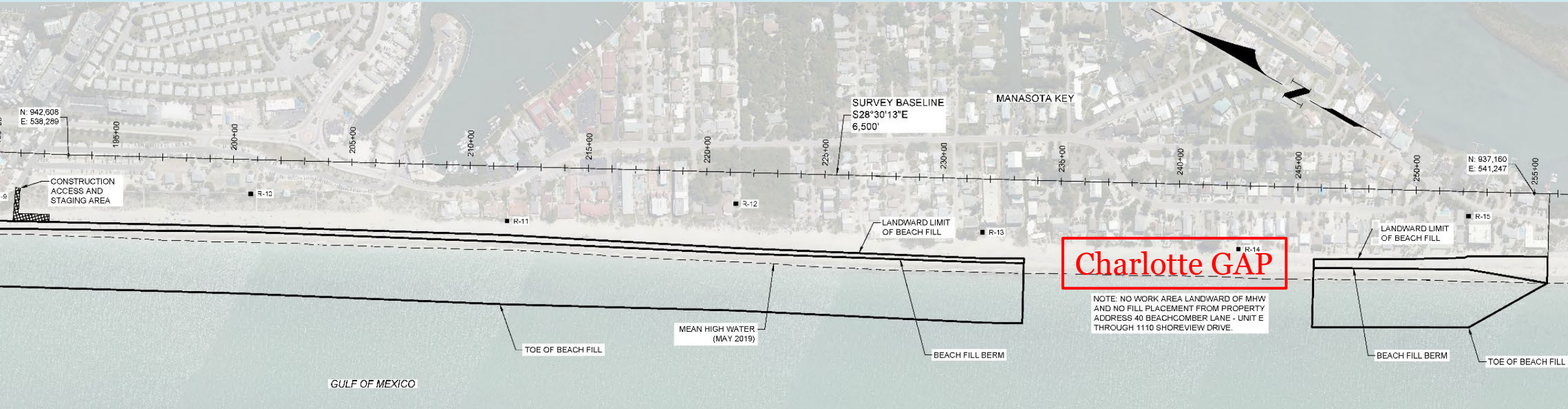
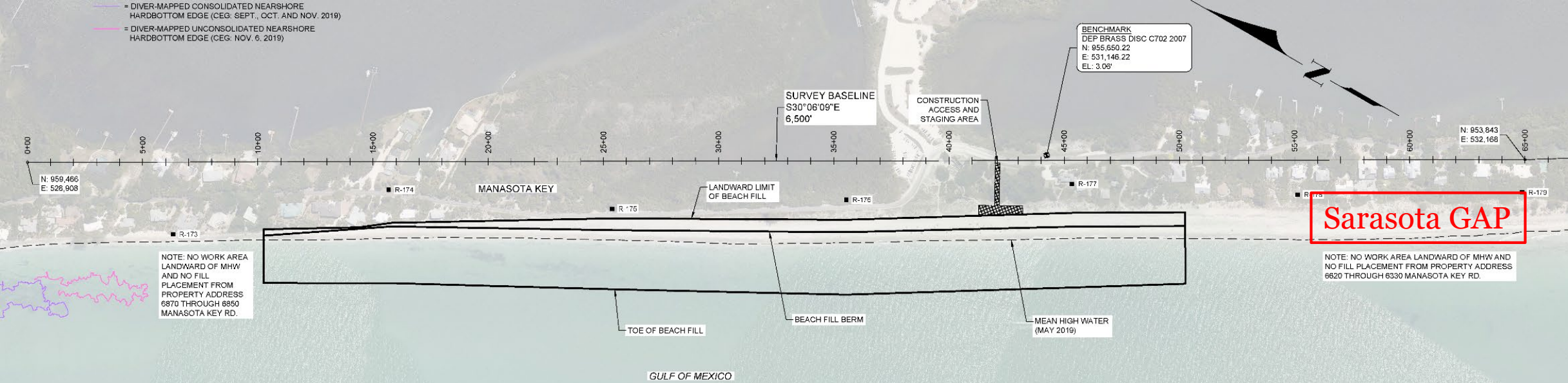
Courtesy of GLDD



MK Project Area

- Sarasota-Charlotte Joint Project (R-175 to R-15.4)
- Overlaps With Charlotte's Existing Erosion Control Project (ECP) from Englewood Beach Park to State Park (R-9 to R-15.4)
- Constructed Concurrent with South Beach Fill Renourishment on Knight-Don Pedro Island

MK Beach Fill Placement Map



March 2020
Looking South



Charlotte County

R-1



April 2020
Looking South



March 2021
Looking South



February 2020



Charlotte County
R-1.5



March 2020



March 2021



Photos Courtesy of
Damian Ochab

February 2020
Looking North



Charlotte County

R-6



May 2020
Looking North



March 2021
Looking North



February 2020
Looking North



Charlotte County
R-6.5



May 2020
Looking North



March 2021
Looking North

February 2020
Looking North



Charlotte County
R-7



May 2020
Looking North



March 2021
Looking North



February 2020
Looking North



Charlotte County
R-9



May 2020
Looking North



March 2021
Looking North





**April 2020
Looking North**

Charlotte County

R-13



**March 2021
Looking North**

April 2020
Looking South



Charlotte County

R-13



March 2021
Looking South



April 2020
Looking North



Charlotte County

R-15.4



March 2021
Looking North



April 2020
Looking South



Charlotte County

R-15.4

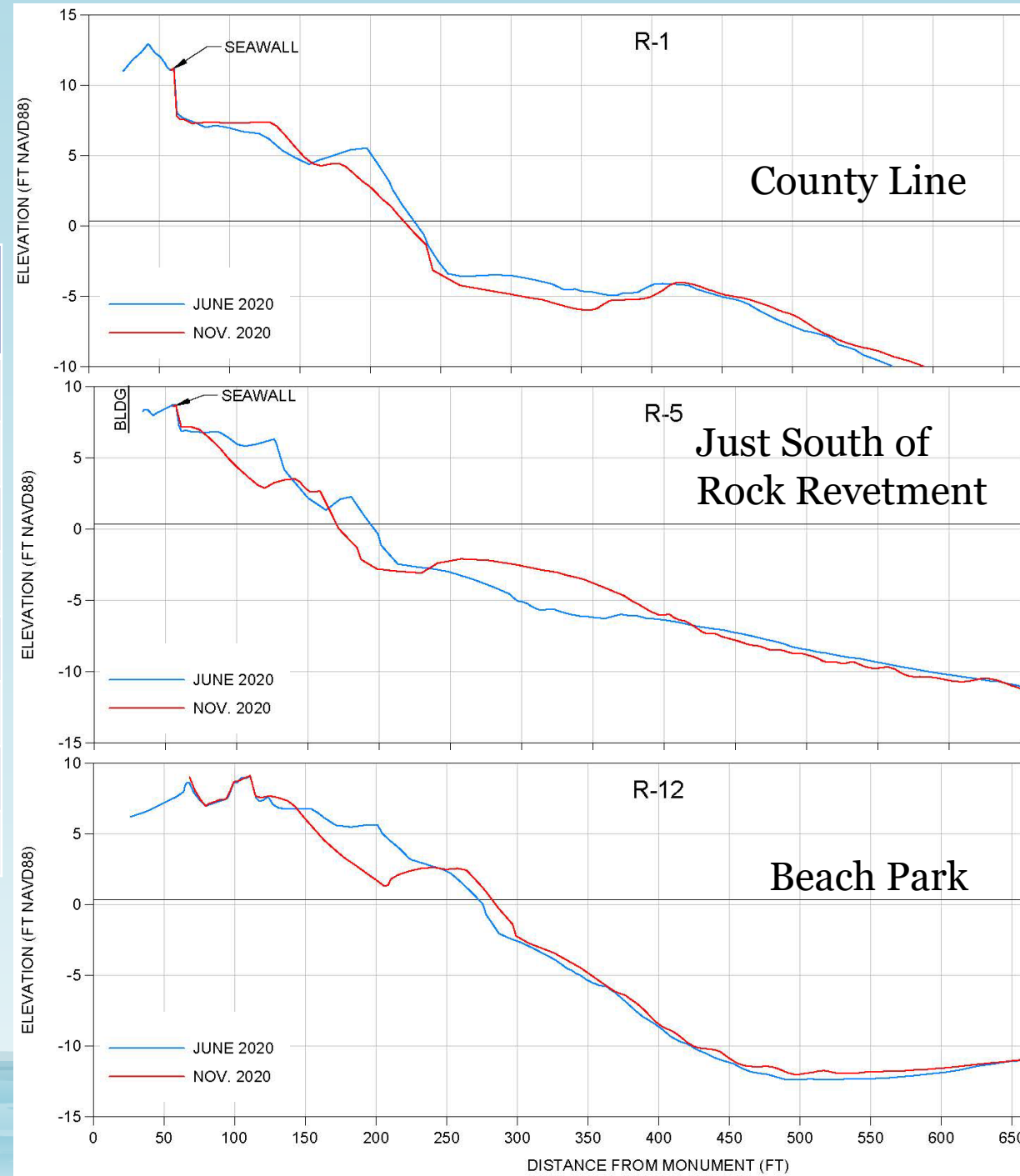


March 2021
Looking South



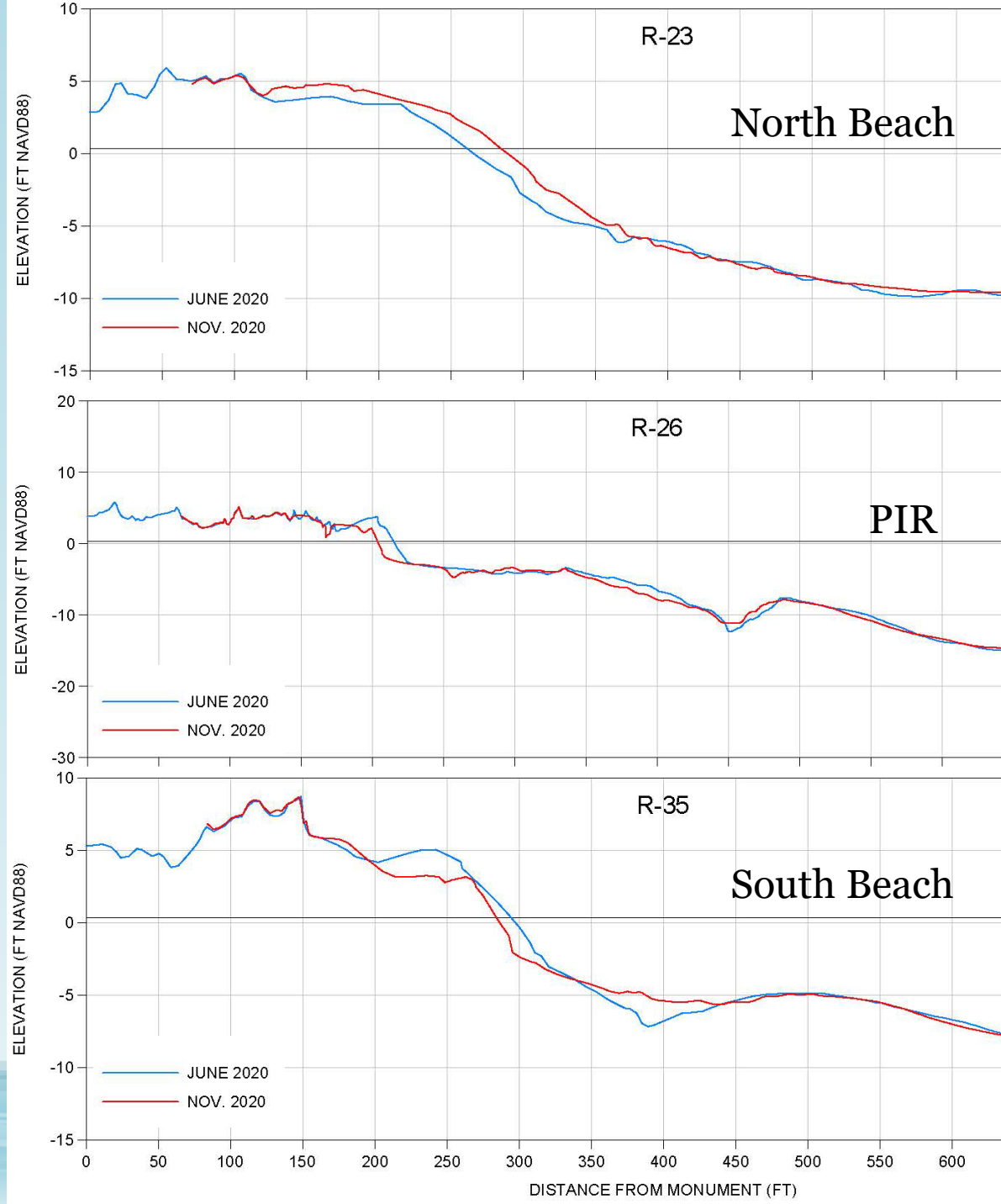
Post-Storm Assessment: Manasota Key

LOCATION	VOLUME CHANGE
North of Fill (R170-R173.4)	+23,398 CY
Sarasota North Segment (R173.4-R177.5)	-19,339 CY
Sarasota Gap (R177.5-R180.8)	-1,572 CY
Sarasota South Segment (R180.8-R183)	-12,205 CY
Charlotte North Segment (R1-R13.2)	+25,252 CY
Charlotte Gap (R13.2-R14.3)	-9,238 CY
Charlotte South Segment (R14.3-R15.3)	-8,458 CY
Stump Pass Beach State Park (R15.3-Inlet)	-23,231 CY



Post-Storm Assessment: Palm-Knight-Don Pedro

LOCATION	VOLUME CHANGE
North Beach Fill (R23-R24)	+10,035 CY
Palm Island Resort (R24-R28)	-22,754 CY
South Beach Fill (R29-R40)	-11,435 CY



Post-Storm Assessment: Stump Pass

NOTES

1. SURVEY CONDUCTED BY COASTAL ENGINEERING CONSULTANTS, INC ON NOVEMBER 24, 2020.
2. ELEVATIONS SHOWN HEREON ARE IN FEET ABOVE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF FLORIDA AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
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7. OUTER CHANNEL MINIMUM RESTRICTED DEPTH OF -6.2 FT NAVD88 (-4.9 FT MLW).

PUBLISHED TIDAL INFORMATION

TIDAL DATUM FROM VENICE, GULF OF MEXICO, FLORIDA
BASED ON FLORIDA 872 5858 TIDAL STATION, PUBLISHED 09-15-2010

LENGTH OF SERIES = 4 MONTHS
TIDAL PERIOD = JUNE 1990 - SEPTEMBER 1990
TIDAL EPOCH = 1993 - 2001
CONTROL TIDAL STATION = NAPLES, GULF OF MEXICO (872 5110)

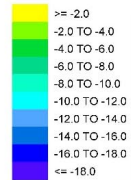
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MEAN LOWER LOW WATER (MLLW) = -1.62' NAVD

LEGEND

- EXISTING CHANNEL MARKER
- EXISTING CHANNEL MARKER
- EXISTING MARKER BUOY
- PROPOSED MARKER BUOY
- EXISTING DANGER SHOAL
- PROPOSED DANGER SHOAL
- EXISTING SLOW SPEED MINIMUM WAKE
- EXISTING SAFE WATER MARK

ELEVATIONS (FT NAVD)



PROPOSED MARKER LOCATIONS		
BUOY	LATITUDE	LONGITUDE
R "2"	N026° 53' 13.96"	W082° 20' 34.02"
G "3"	N026° 53' 27.60"	W082° 20' 27.56"
G "5"	N026° 53' 40.48"	W082° 20' 27.69"

GULF OF MEXICO

RW "SP"
Mo (A)

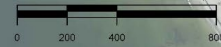
TERMINAL GROIN

MANASOTA KEY

DANGER SHOAL

STUMP PASS

NAVIGATION CHANNEL



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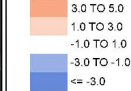
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- PROPOSED DANGER SHOAL
- EXISTING SLOW SPEED MINIMUM WAKE
- EXISTING SAFE WATER MARK

2020/07 - 2020/11 CHANGE (FT)

+ = SHOALING

- = SCOURING



GULF OF MEXICO

RW "SP"
Mo (A)

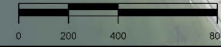
TERMINAL GROIN

MANASOTA KEY

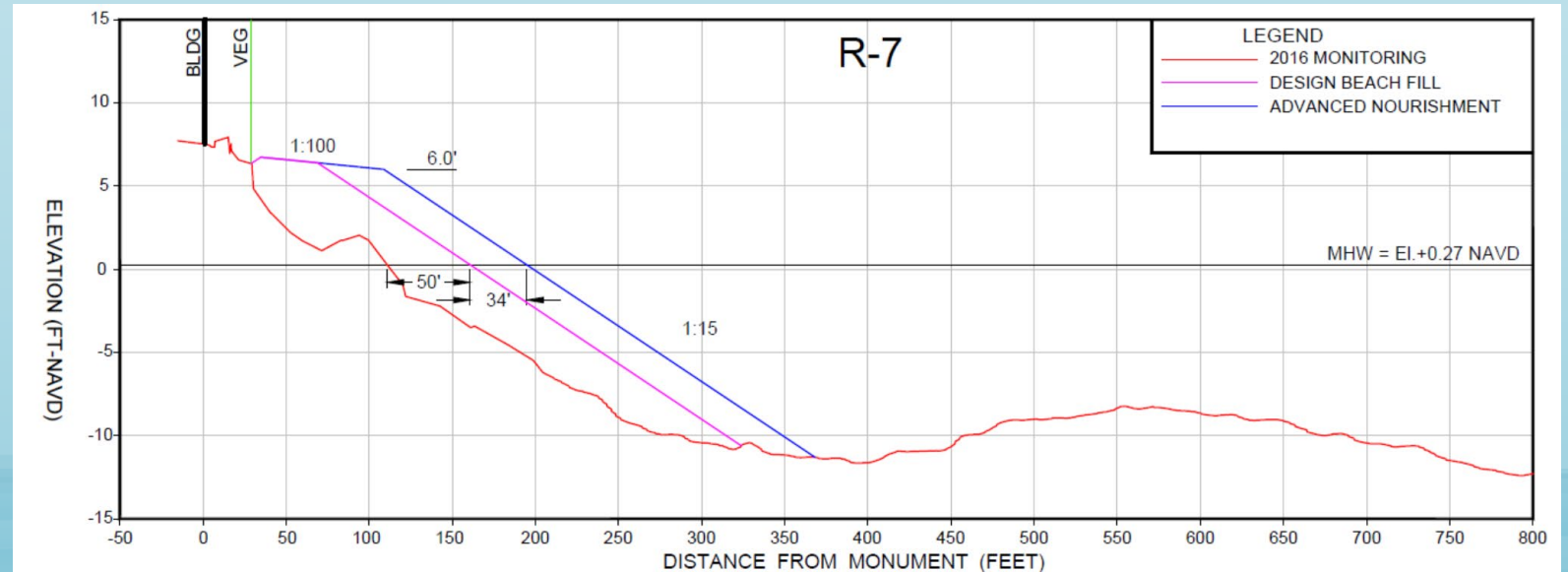
DANGER SHOAL

STUMP PASS

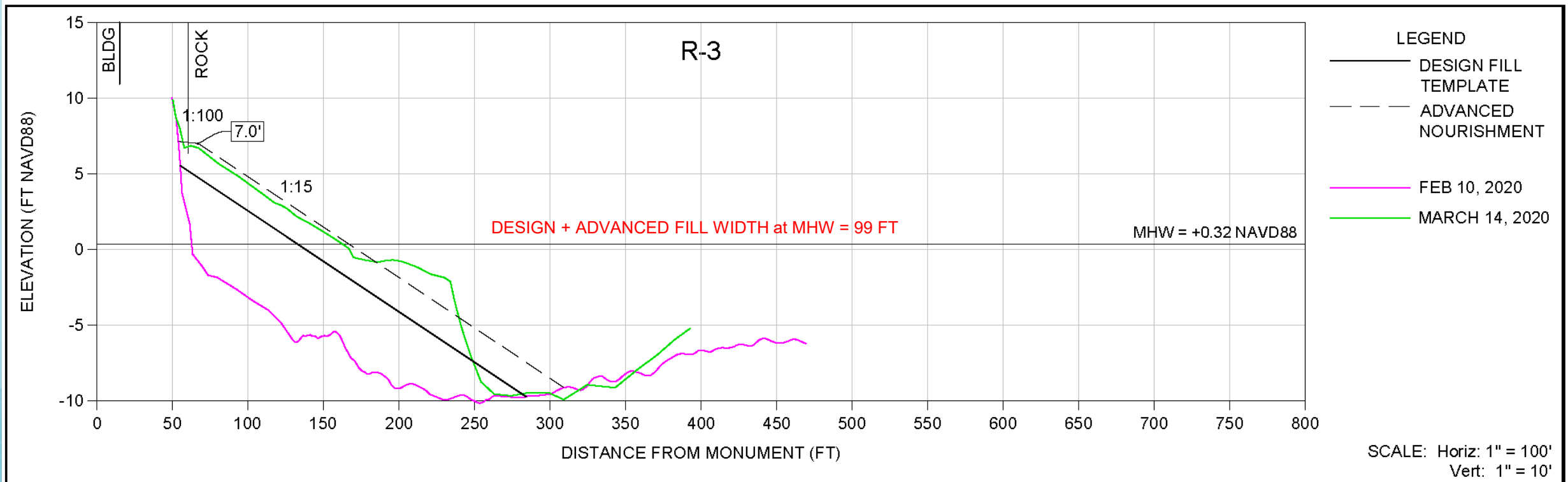
NAVIGATION CHANNEL



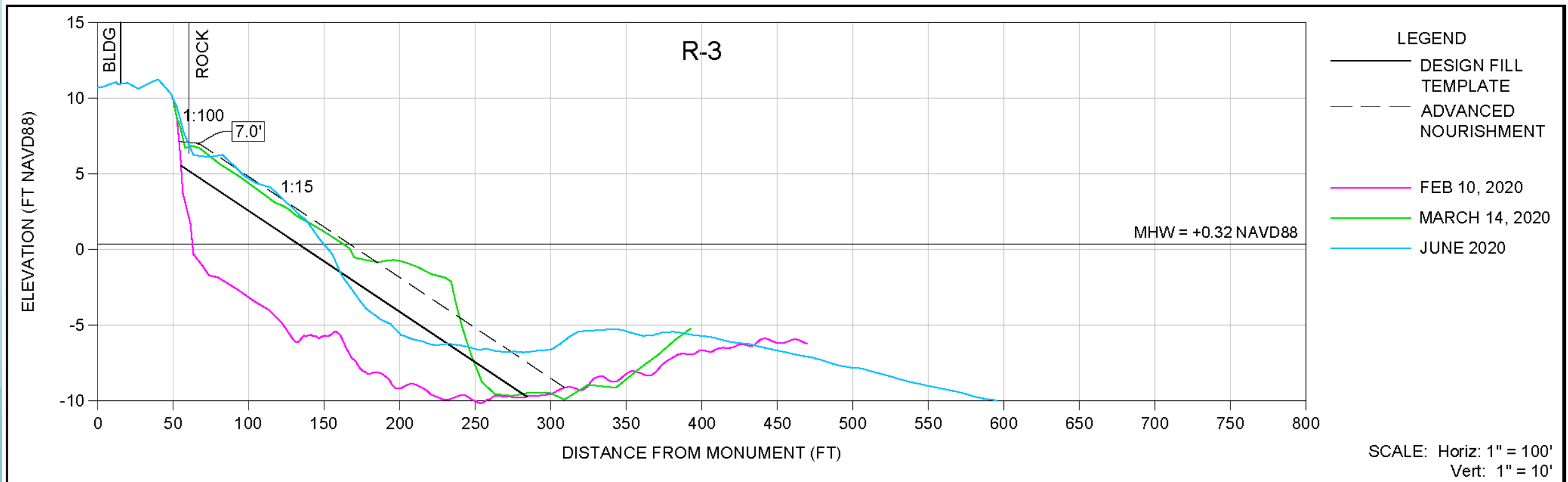
MK BEACH FILL EVOLUTION



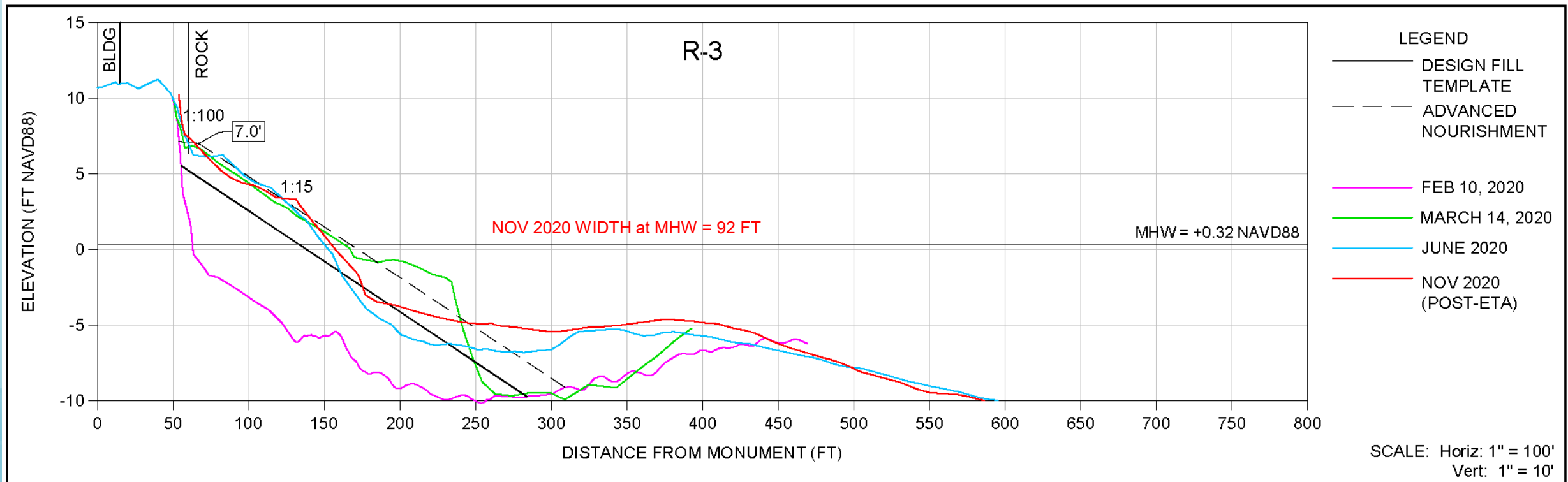
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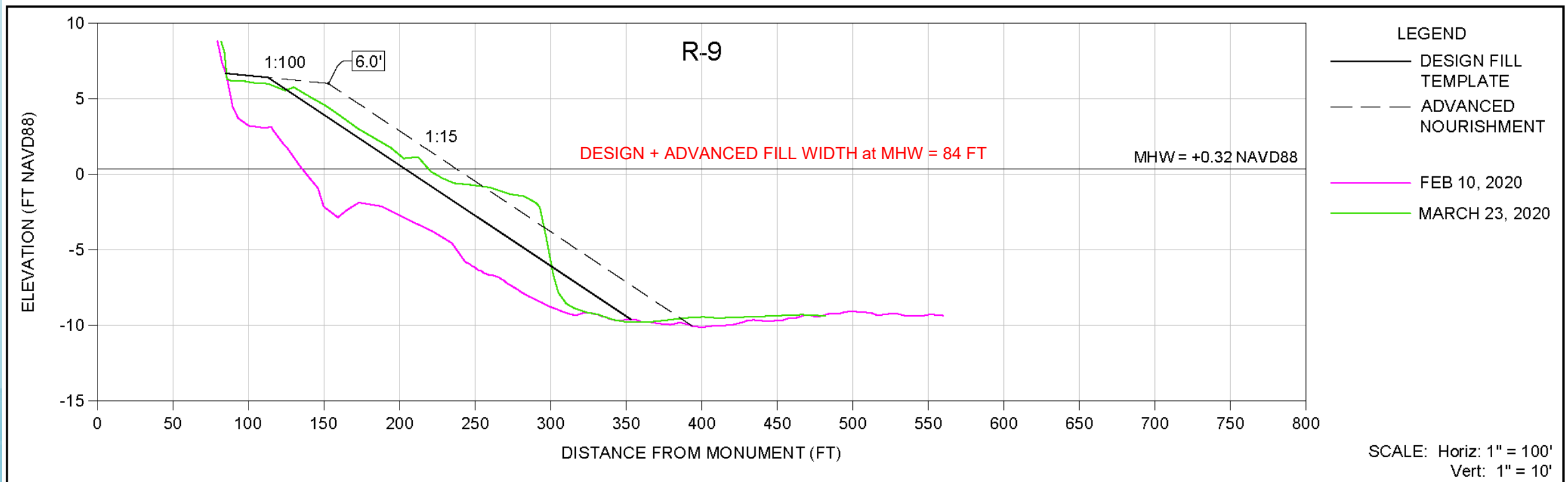
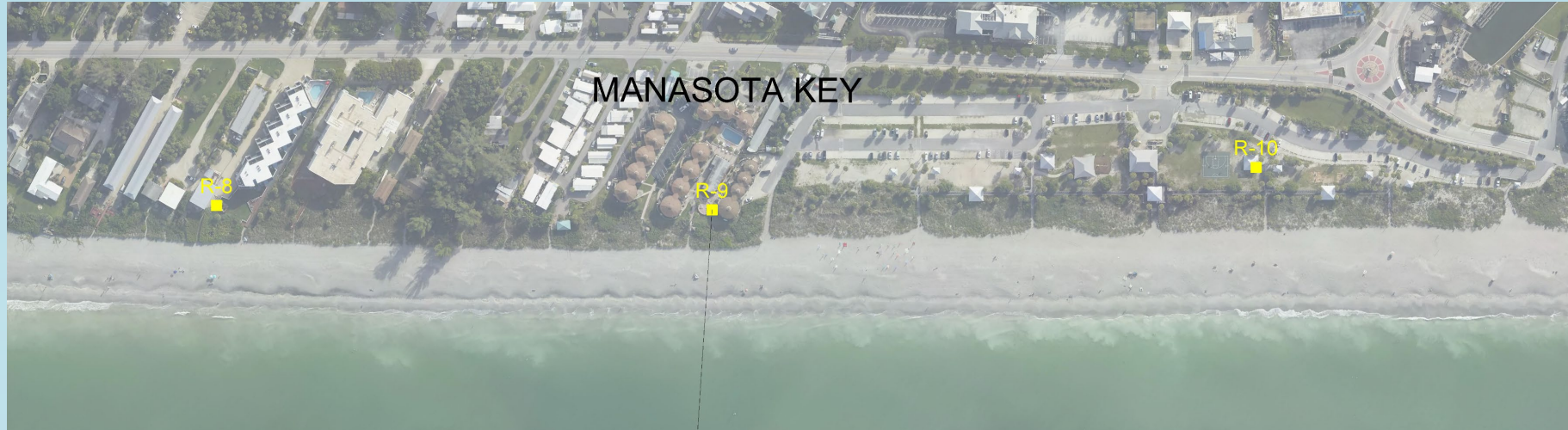
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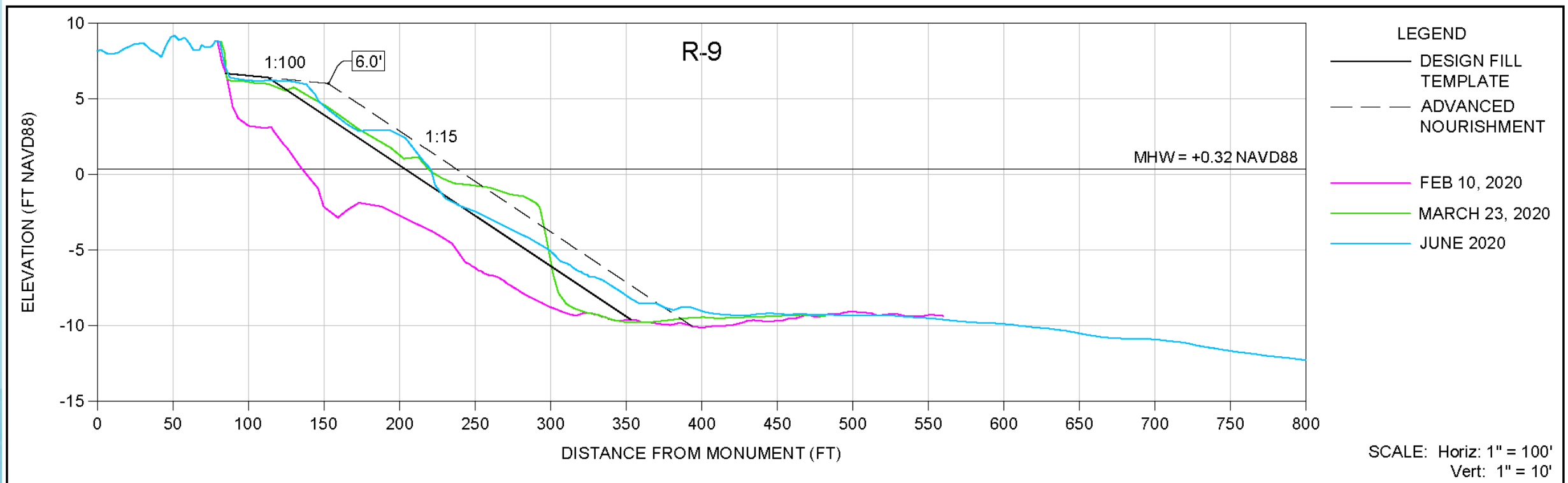
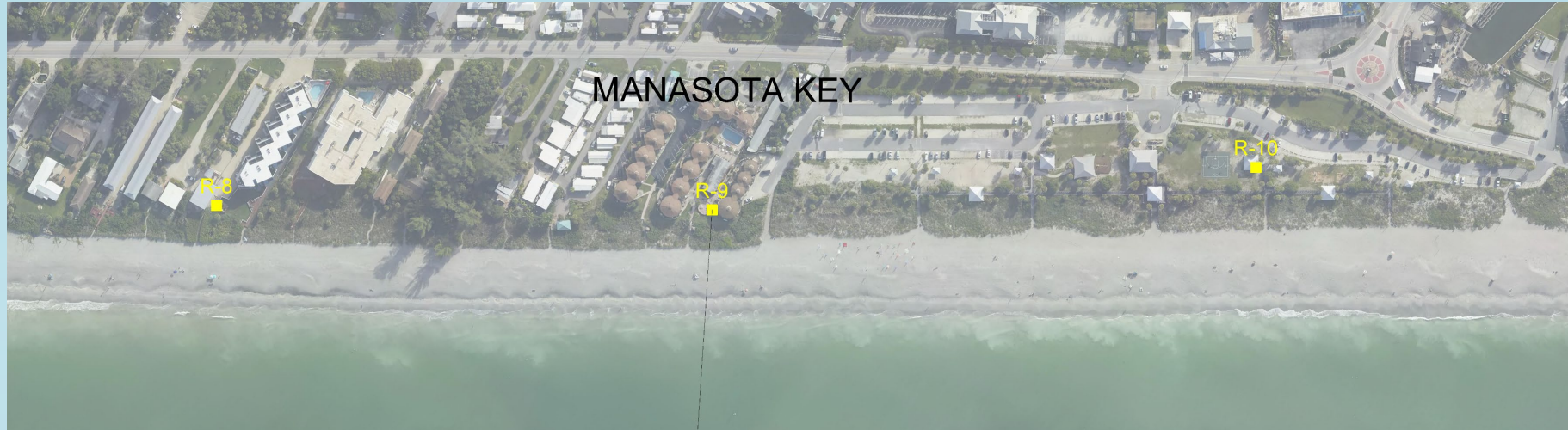
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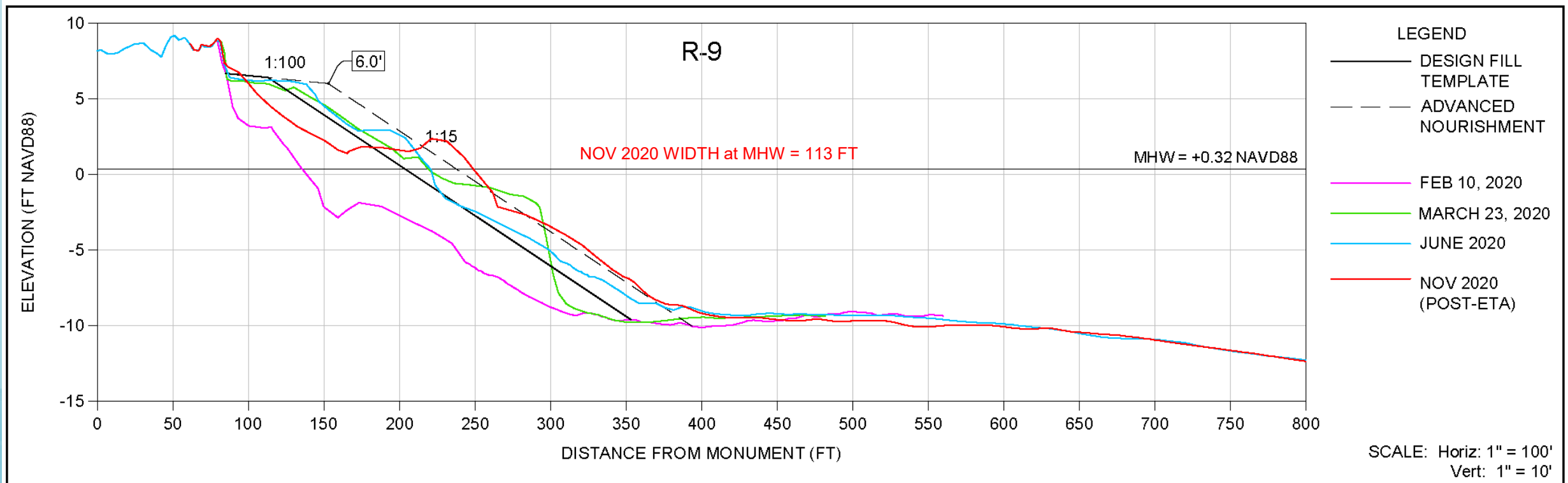
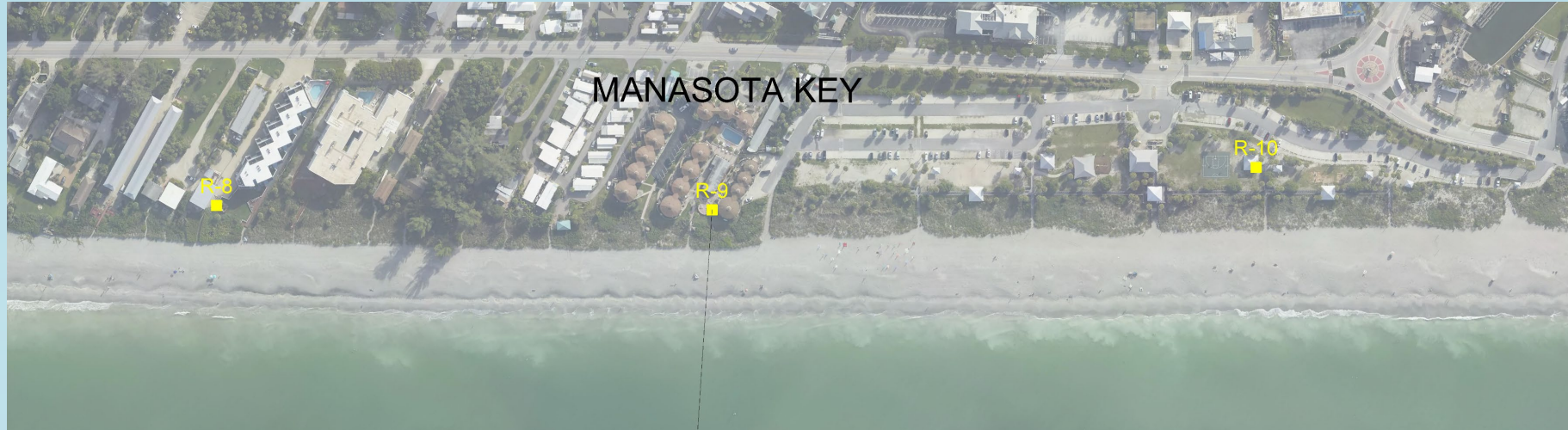
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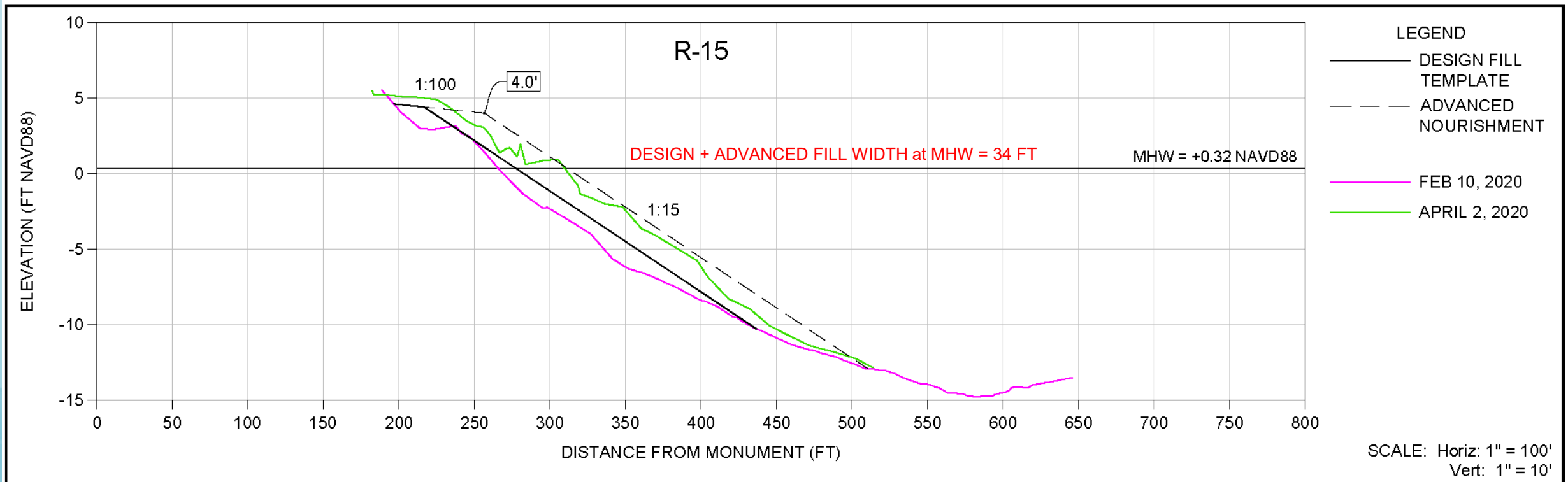
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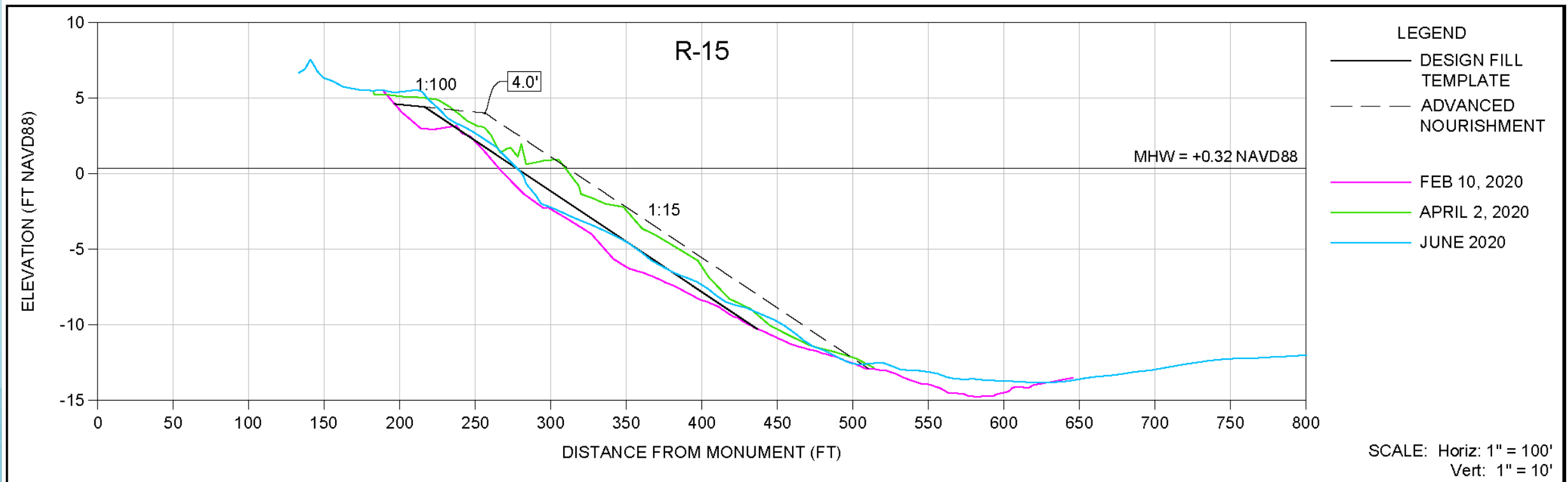
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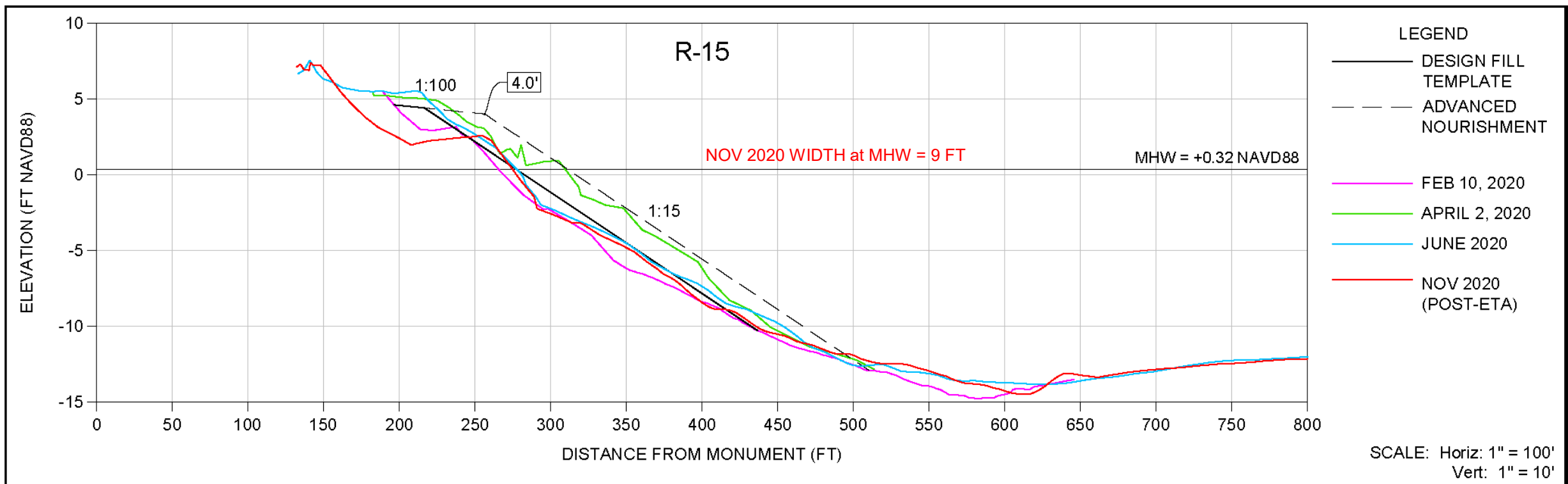
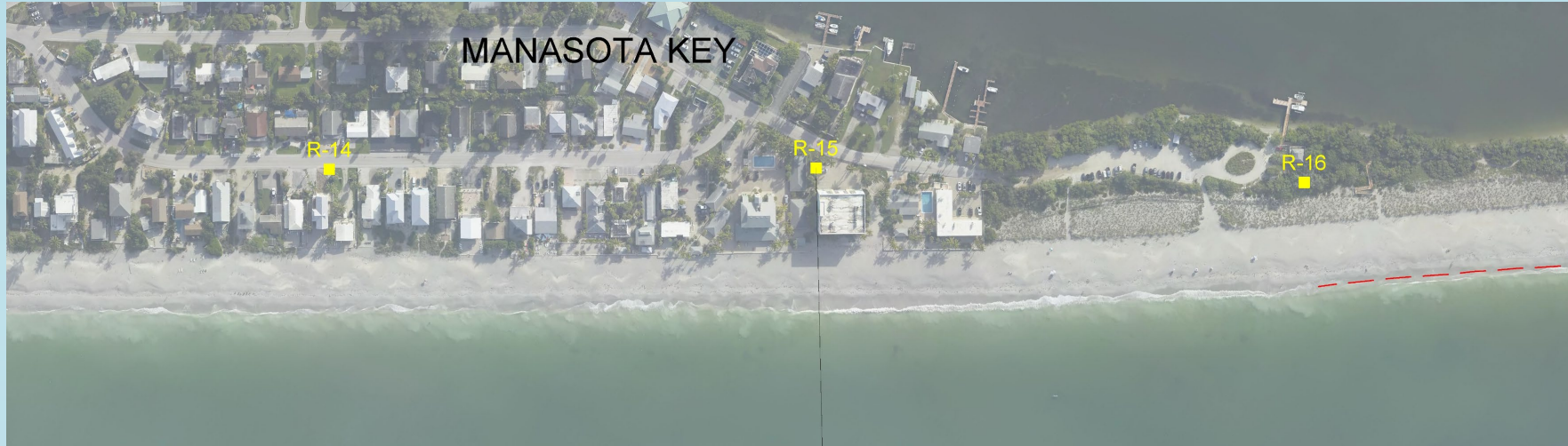
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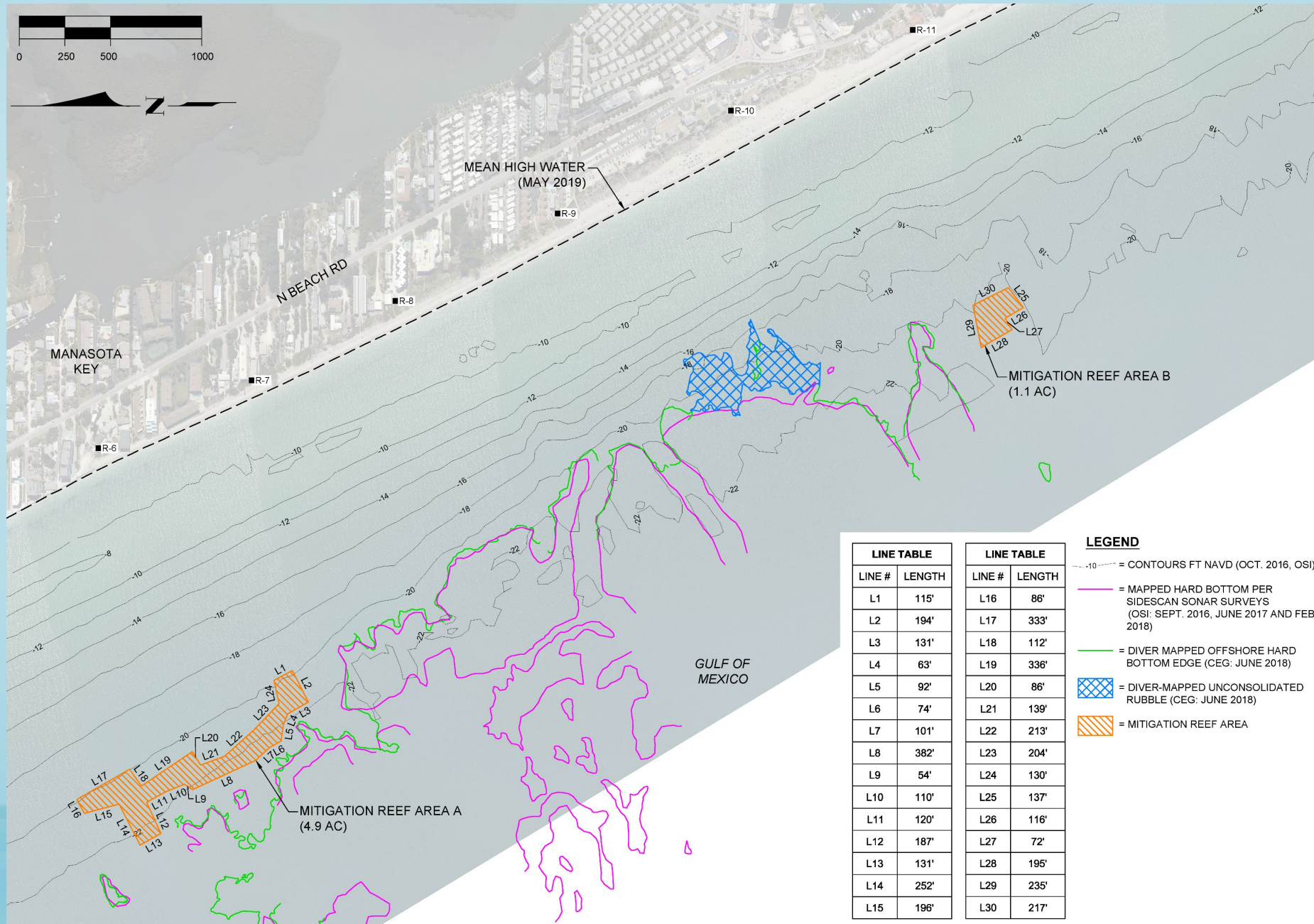
MK BEACH FILL EVOLUTION



MK BEACH FILL EVOLUTION



MITIGATION REEF



LINE TABLE	
LINE #	LENGTH
L1	115'
L2	194'
L3	131'
L4	63'
L5	92'
L6	74'
L7	101'
L8	382'
L9	54'
L10	110'
L11	120'
L12	187'
L13	131'
L14	252'
L15	196'

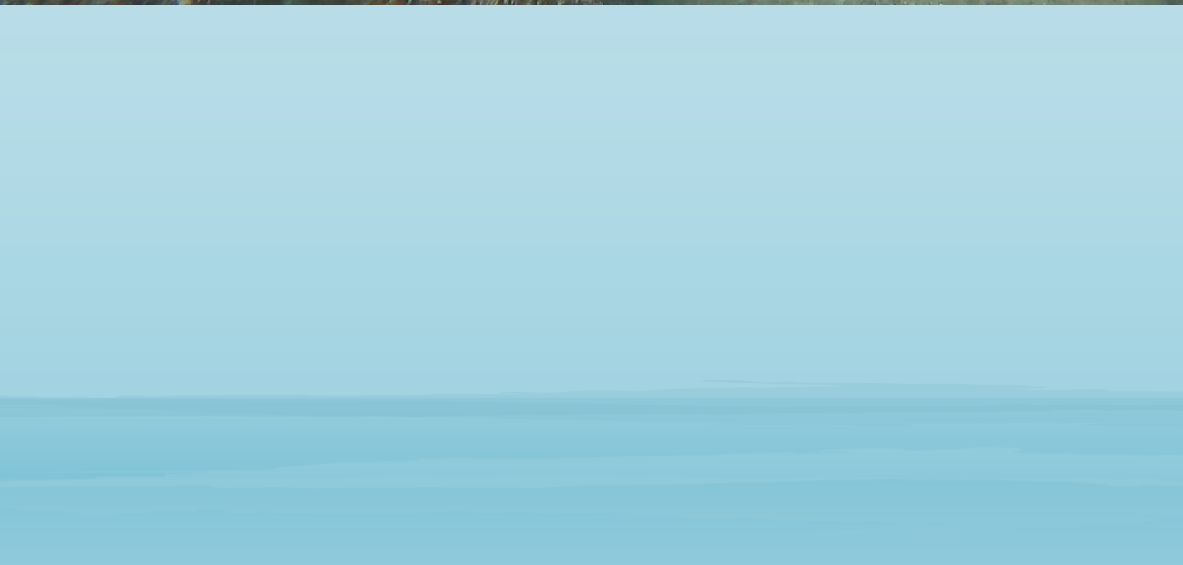
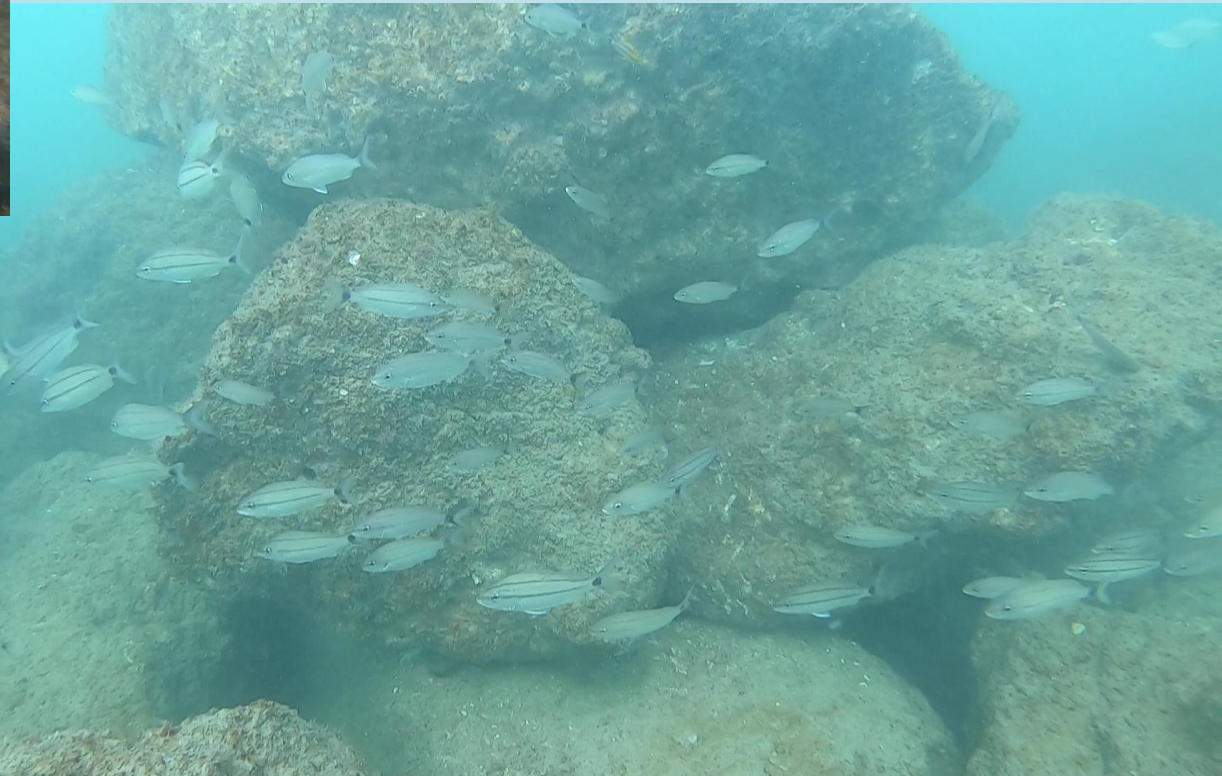
LINE TABLE	
LINE #	LENGTH
L16	86'
L17	333'
L18	112'
L19	336'
L20	86'
L21	139'
L22	213'
L23	204'
L24	130'
L25	137'
L26	116'
L27	72'
L28	195'
L29	235'
L30	217'

- LEGEND**
- - - - - = CONTOURS FT NAVD (OCT. 2016, OSI)
 - (pink) = MAPPED HARD BOTTOM PER SIDESCAN SONAR SURVEYS (OSI: SEPT. 2016, JUNE 2017 AND FEB. 2018)
 - (green) = DIVER MAPPED OFFSHORE HARD BOTTOM EDGE (CEG: JUNE 2018)
 - ▒ (blue) = DIVER-MAPPED UNCONSOLIDATED RUBBLE (CEG: JUNE 2018)
 - ▒ (orange) = MITIGATION REEF AREA

MITIGATION REEF



MITIGATION REEF



MITIGATION REEF



- NOTES**
1. NEARSHORE HARDBOTTOM MAPPING SURVEY CONDUCTED BY OSI, INC. JUNE 12-19, 2017.
 2. MITIGATION REEF SURVEYS CONDUCTED BY HYATT SURVEY SERVICES, INC. ON JANUARY 20, 2021 AND MARCH 9, 2021.
 3. MITIGATION REEF PERIMETER SURVEY CONDUCTED BY CEG, INC. ON JANUARY 27, 2021 AND FEBRUARY 28, 2021.
 4. PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF FLORIDA AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
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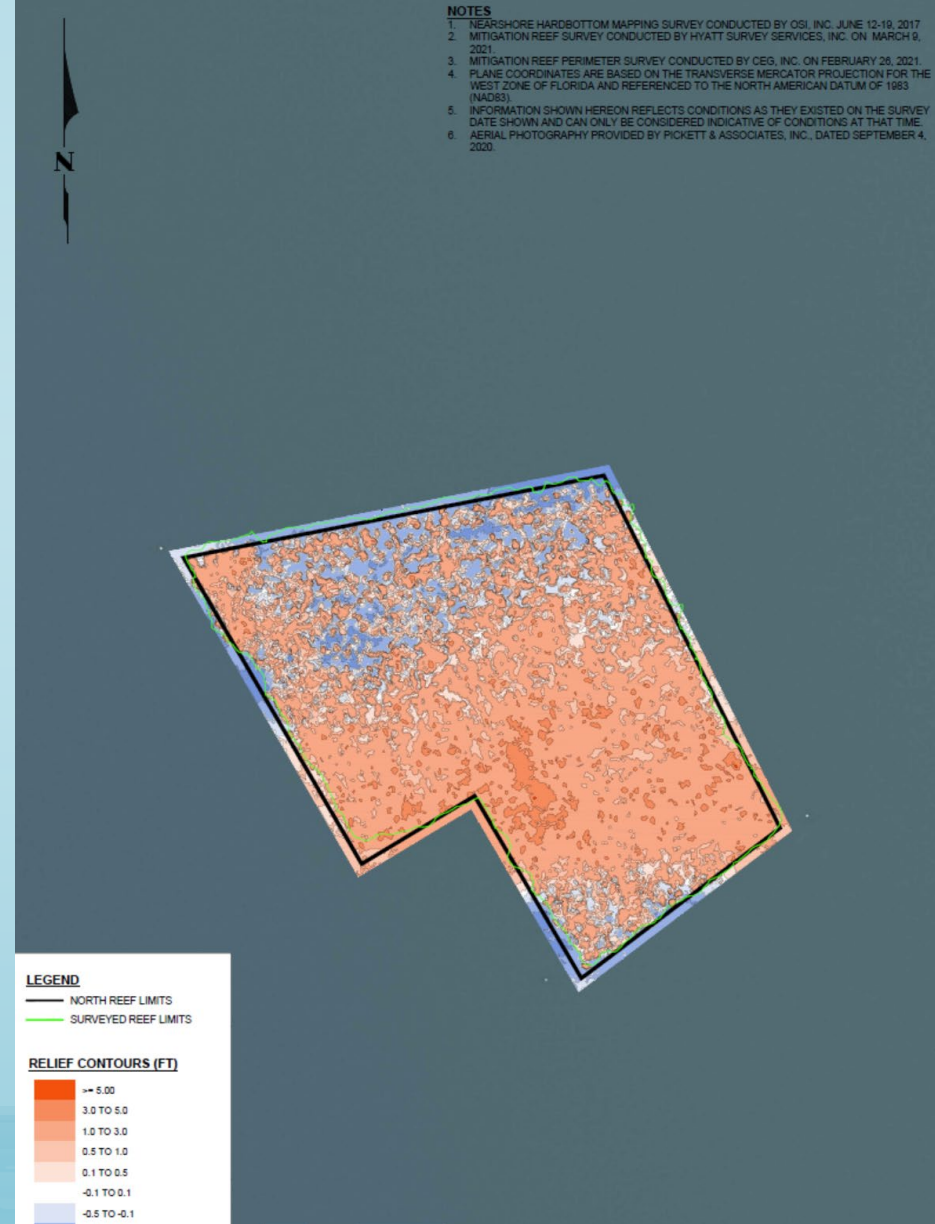
LEGEND

— NORTH REEF LIMITS
 — SURVEYED REEF LIMITS

RELIEF CONTOURS (FT)

Orange	± 5.00
Light Orange	3.0 TO 5.0
Lighter Orange	1.0 TO 3.0
Lightest Orange	0.5 TO 1.0
Very Light Orange	0.1 TO 0.5
Lightest Orange	-0.1 TO 0.1
Lightest Orange	-0.5 TO -0.1
Lightest Orange	-1.0 TO -0.5
Lightest Orange	-3.0 TO -1.0

0 50 100 200
 SCALE: 1" = 100'



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0 25 50 100
 SCALE: 1" = 100'

Condition Survey: Stump Pass (3-12 2021)

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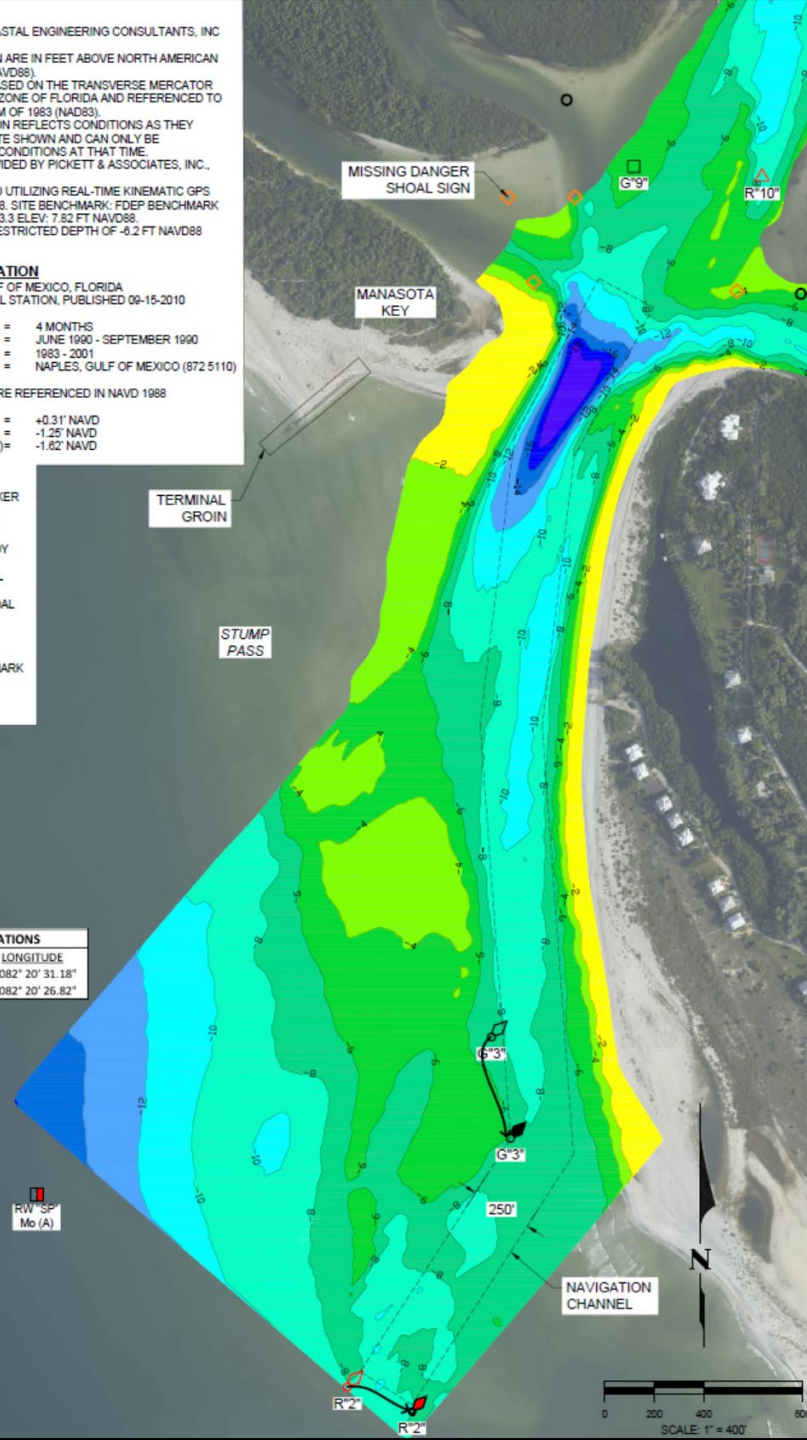
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- EXISTING SLOW SPEED MINIMUM WAKE
- EXISTING SAFE WATER MARK

ELEVATIONS (FT NAVD)

- >= -2.0
- 2.0 TO -4.0
- 4.0 TO -6.0
- 6.0 TO -8.0
- 8.0 TO -10.0
- 10.0 TO -12.0
- 12.0 TO -14.0
- 14.0 TO -16.0
- 16.0 TO -18.0
- <= -18.0

PROPOSED MARKER LOCATIONS

BUOY	LATITUDE	LONGITUDE
R "2"	N026° 53' 12.37"	W082° 20' 31.18"
G "3"	N026° 53' 23.33"	W082° 20' 26.82"



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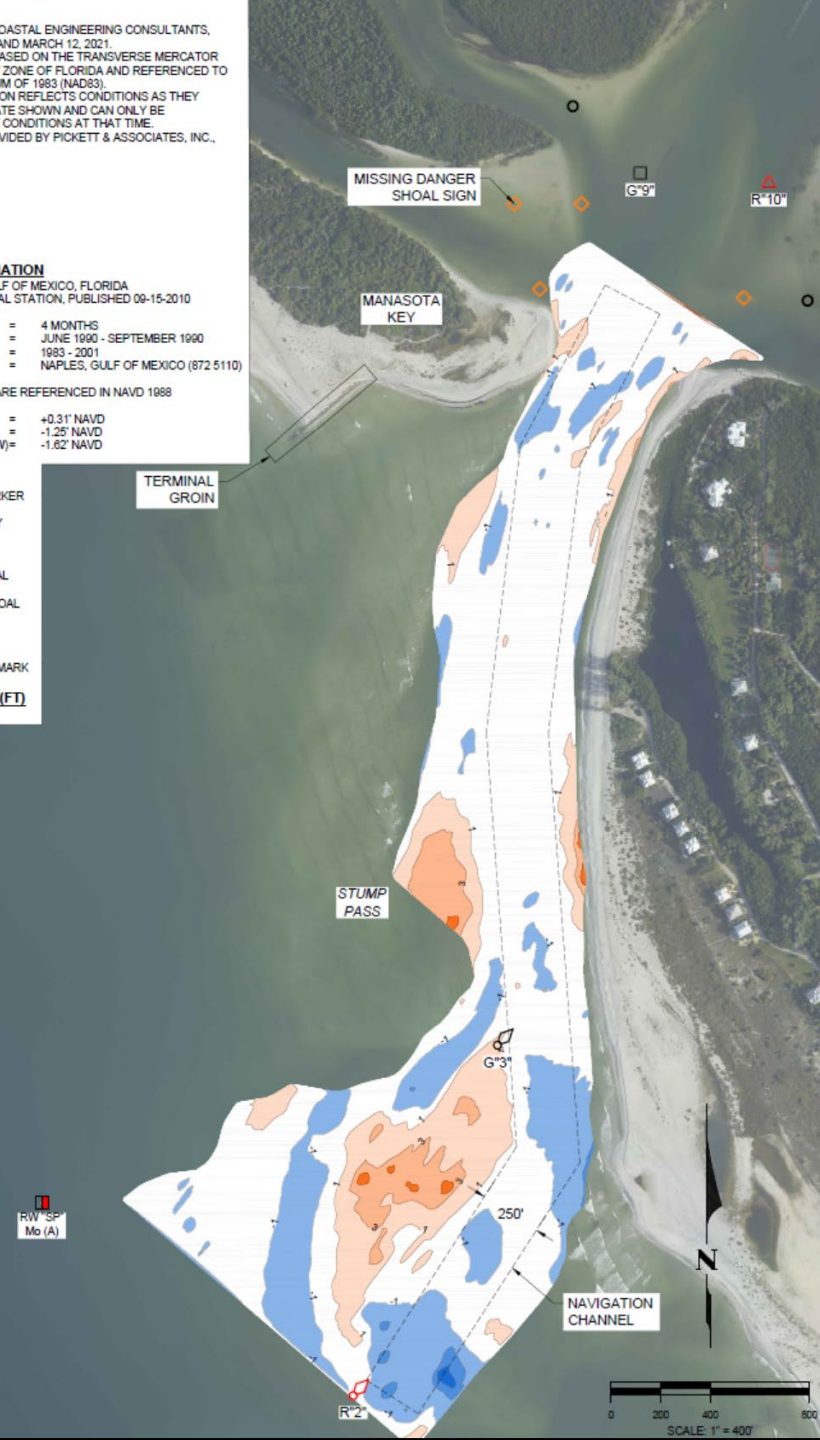
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- EXISTING SLOW SPEED MINIMUM WAKE
- EXISTING SAFE WATER MARK

2020/11 - 2021/03 CHANGE (FT)

- + = SHOALING
- = SCOURING
- -4.0
 - 3.0 - 4.0
 - 1.0 - 3.0
 - 1.0 - 1.0
 - 3.0 - -1.0
 - 4.0 - -3.0
 - +4.0



STUMP PASS MAINTENANCE DREDGE SCHEDULE

- Apr-Aug (21): Bid Process/Contracting
- Sep-Oct (21): Mobilization
- Nov(21)-Apr(22): Construction

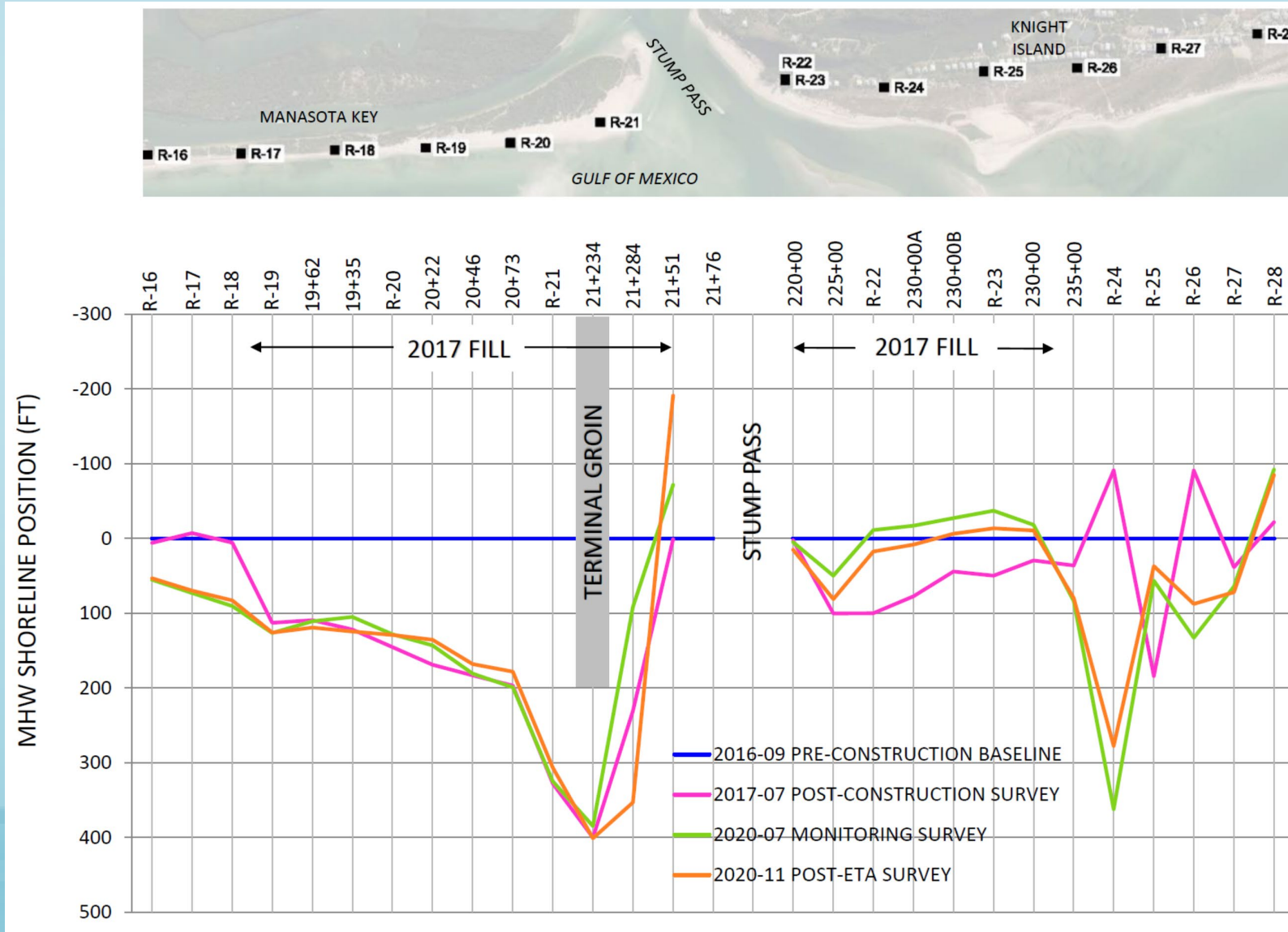


TERMINAL GROIN ASSESSMENT



TERMINAL GROIN ASSESSMENT

SHORELINE STABILIZATION UPDRIFT OF GROIN



TERMINAL GROIN ASSESSMENT

SHOALING RATES WITHIN PERMITTED DREDGE TEMPLATE

2011 PROJECT: WITHOUT GROIN		
2011/05-2012/07	82,489	CY
2012/07-2013/07	142,996	CY
2013/07-2014/08	86,551	CY
2014/08-2015/08	56,735	CY
Annualized Rate	86,770	CY/YR

 **38% REDUCTION IN SHOALING**

2017 PROJECT: GROIN ADDED		
2017/07 – 2018/08	61,940	CY
2018/08 – 2019/09	107,438	CY
2019/09 – 2020/07	-6,869	CY
Annualized Rate	54,170	CY/YR