Manasota Key Beach Restoration Project Update

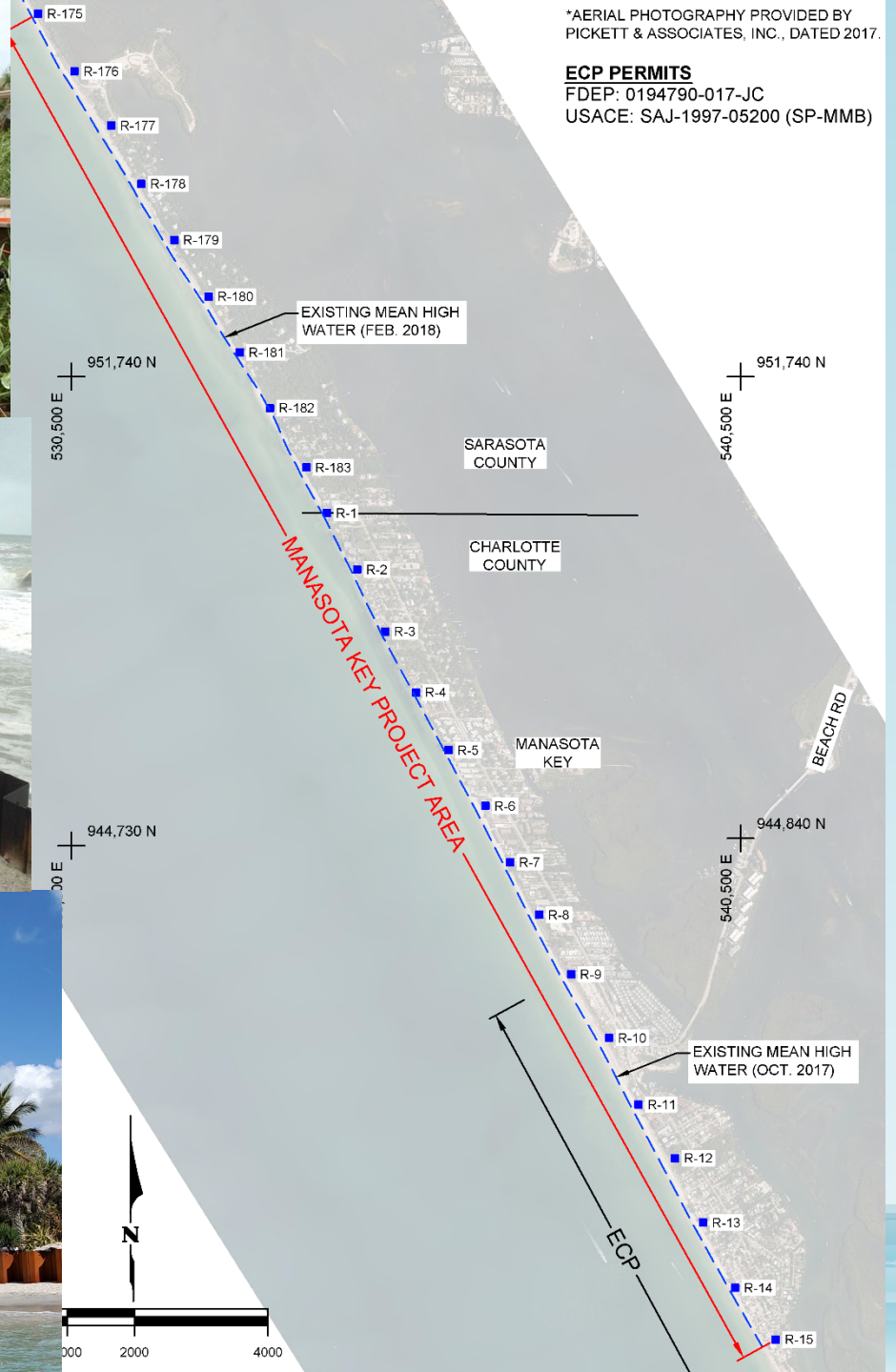
Board of County Commissioners
April 27, 2021

COASTAL ENGINEERING CONSULTANTS INC.

OUTLINE

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

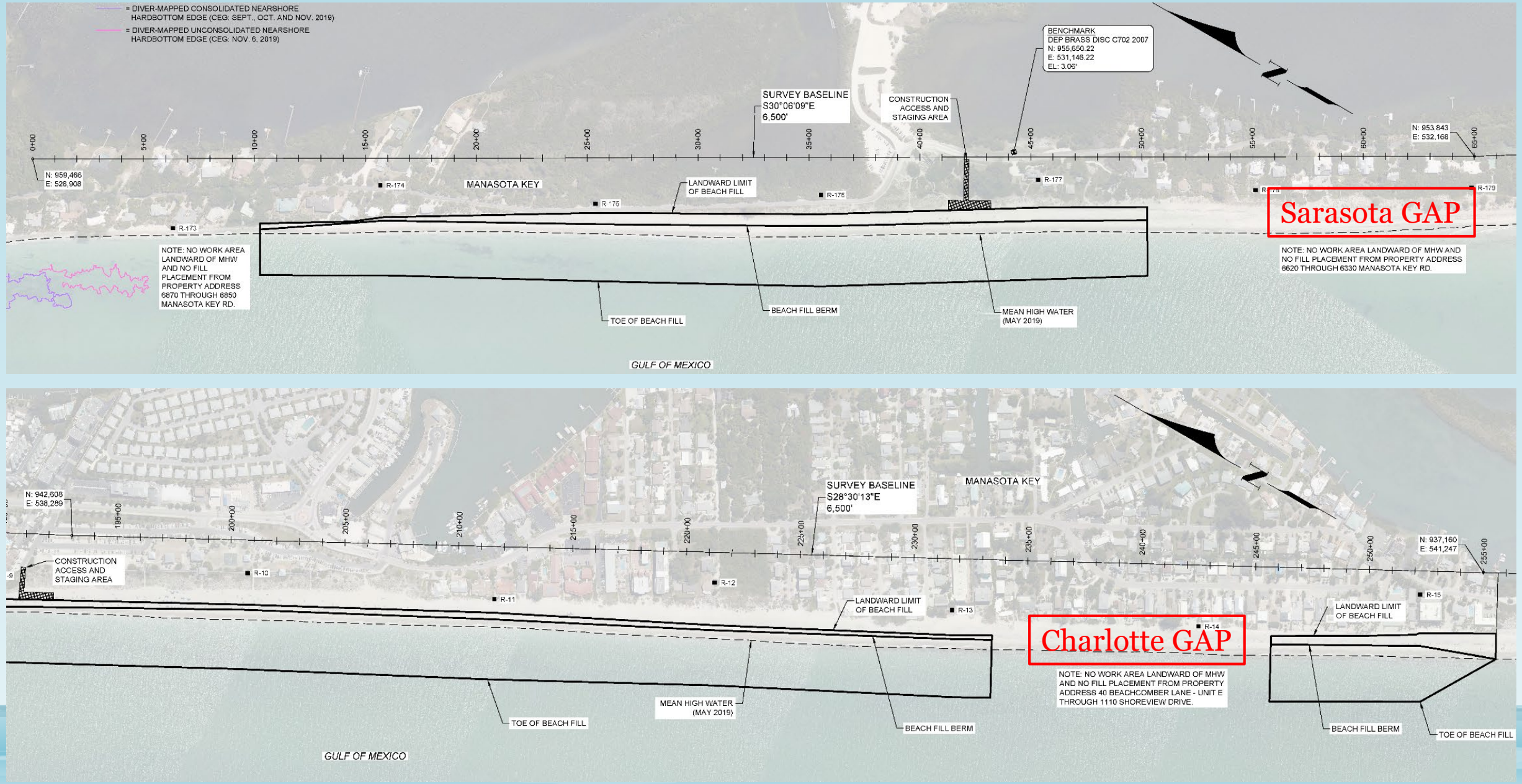
Courtesy of GLDD



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



Charlotte County

R-1

COASTAL ENGINEERING CONSULTANTS INC.

Charlotte County

R-1.5

COASTAL ENGINEERING CONSULTANTS INC.

Photos Courtesy of
Damian Ochab

Charlotte County

R-6

COASTAL ENGINEERING CONSULTANTS INC.

Charlotte County

R-6.5

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Charlotte County

R-7

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Charlotte County

R-9

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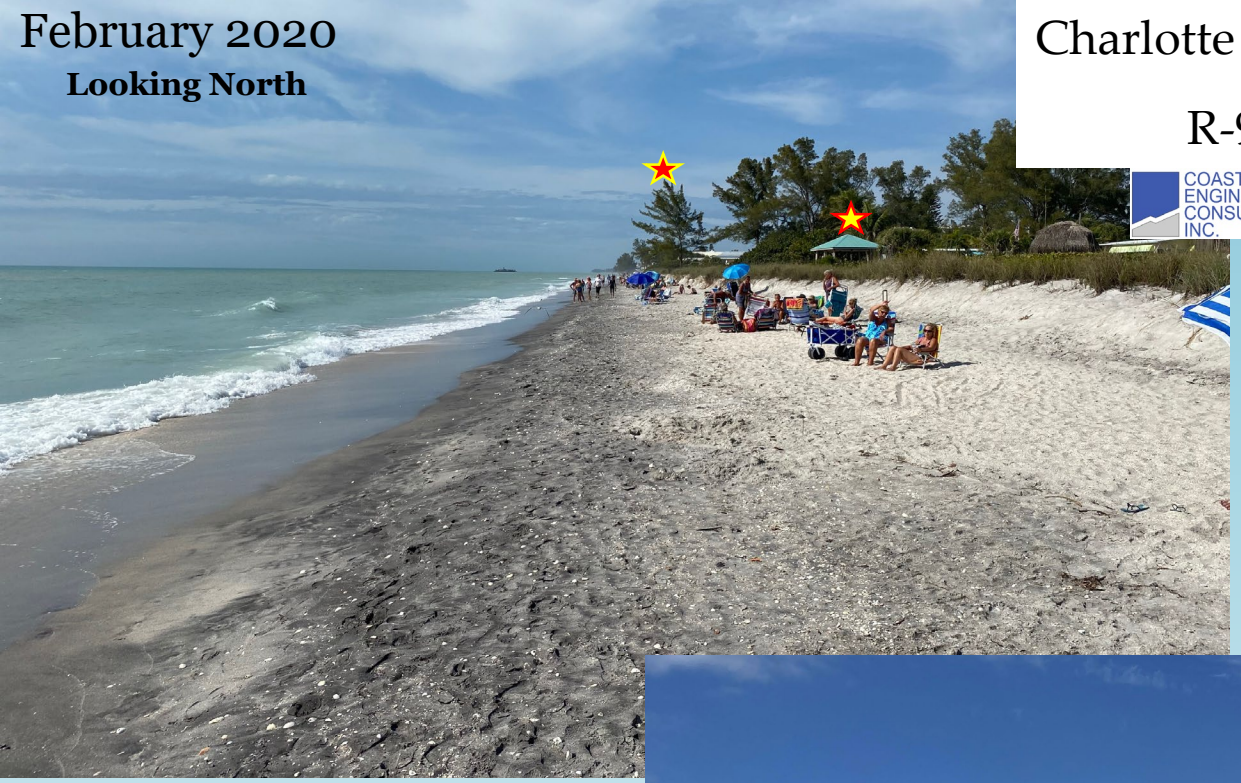


Charlotte County

R-13

COASTAL ENGINEERING CONSULTANTS INC.

April 2020
Looking North

March 2021
Looking North

Charlotte County

R-13

COASTAL ENGINEERING CONSULTANTS INC.

April 2020
Looking South

March 2021
Looking South

Charlotte County

R-15.4

COASTAL ENGINEERING CONSULTANTS INC.

Charlotte County

R-15.4

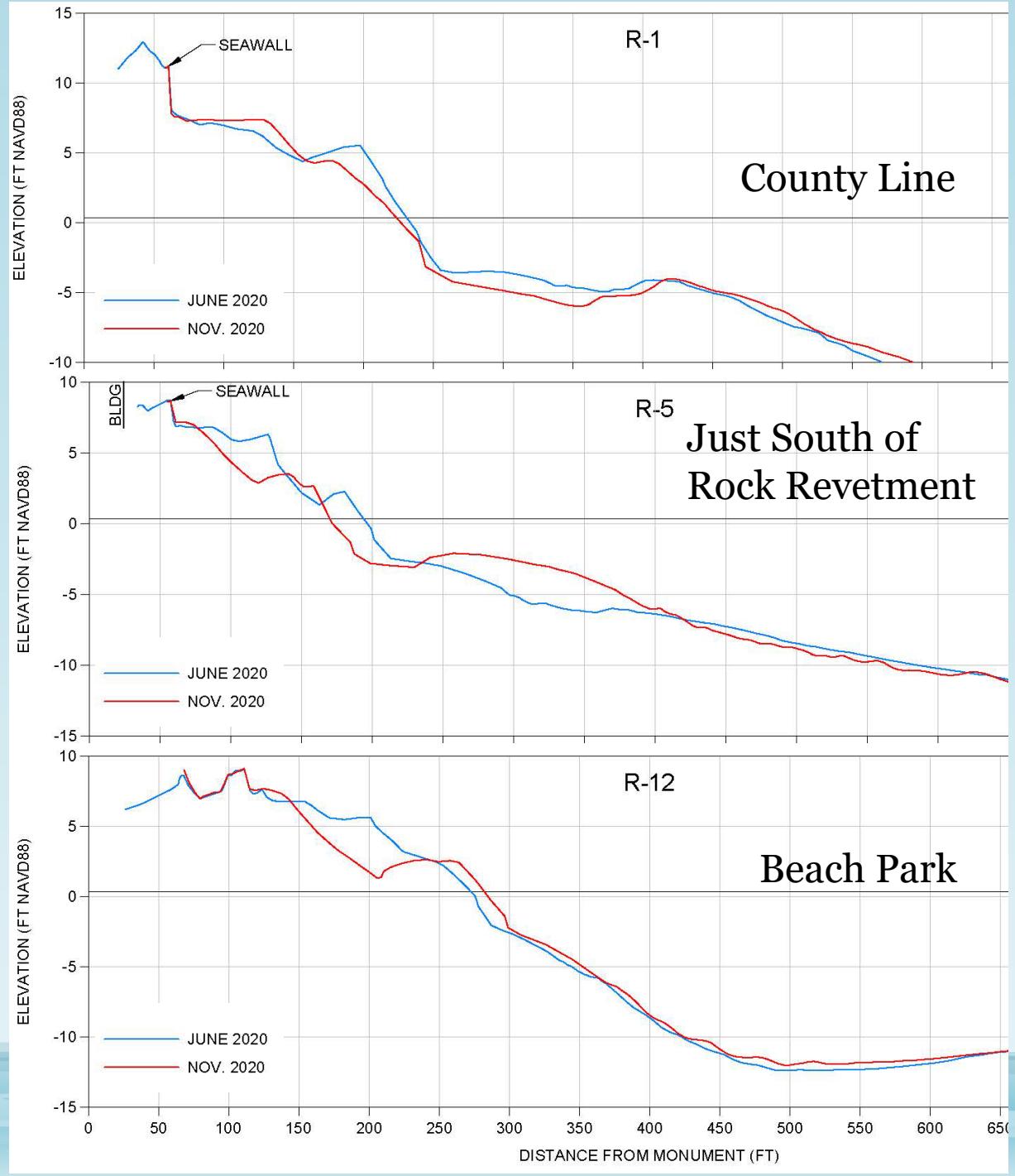
COASTAL ENGINEERING CONSULTANTS INC.

April 2020
Looking South

March 2021
Looking South

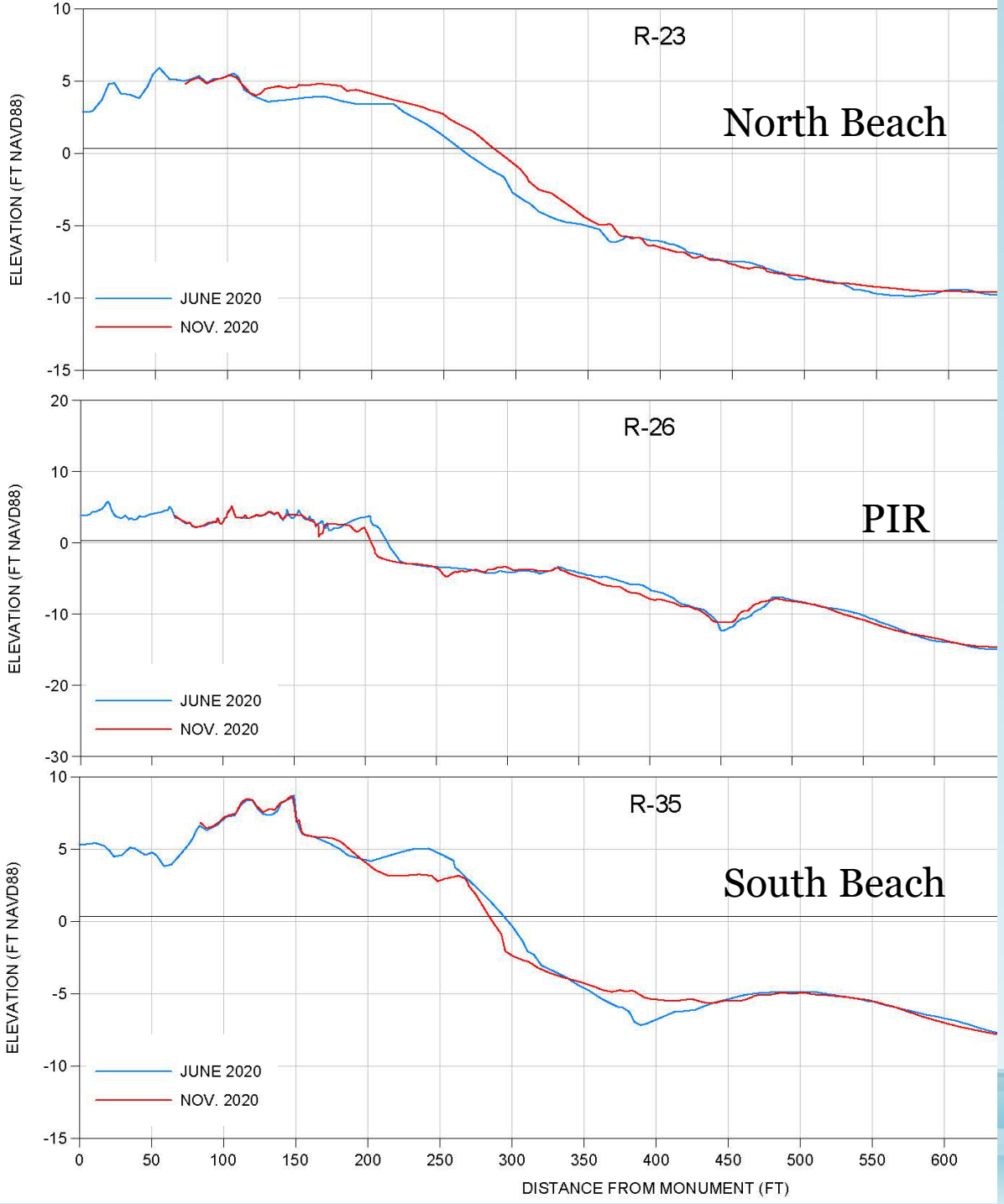
Post-Storm Assessment: Manasota Key

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

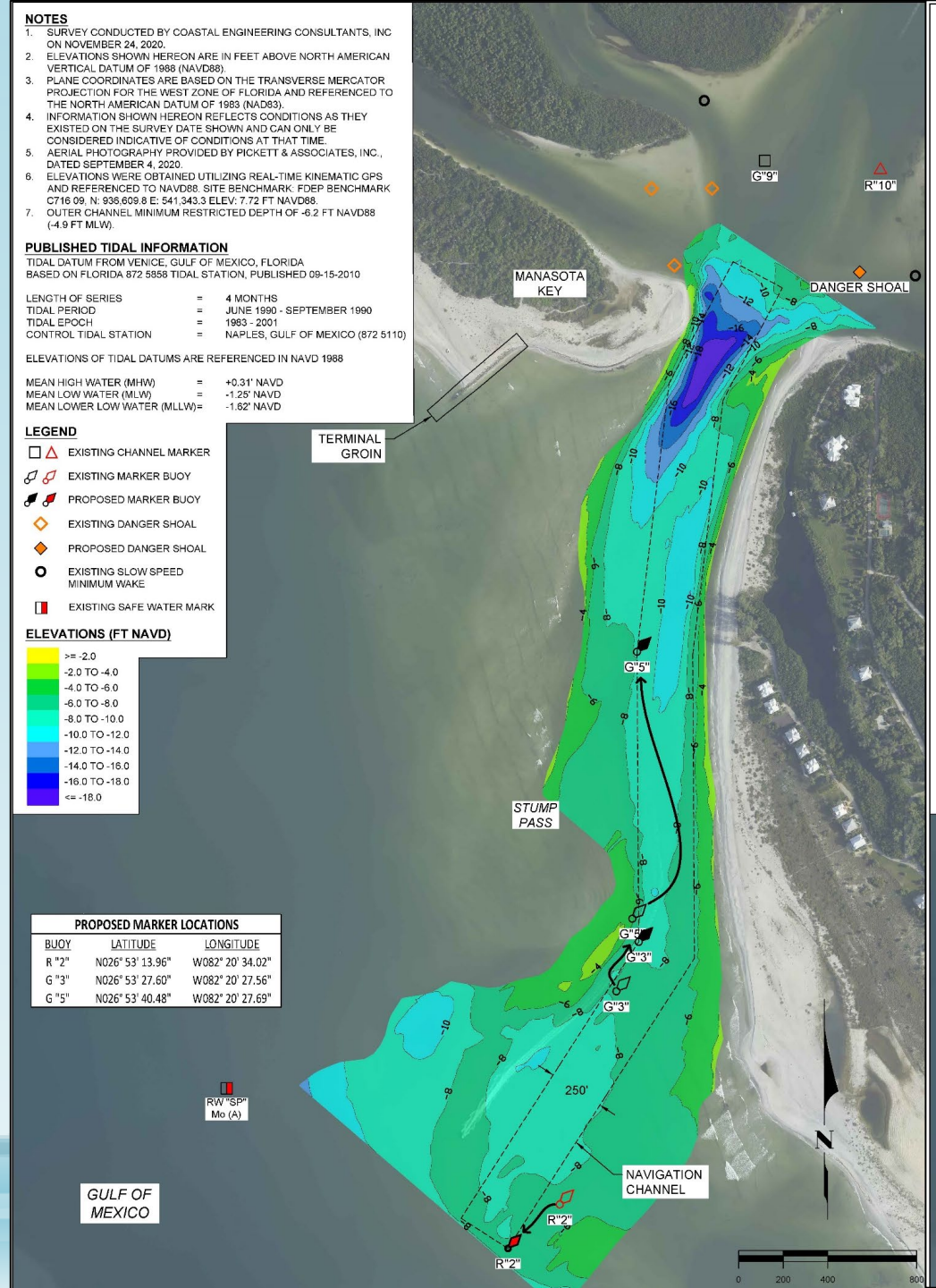


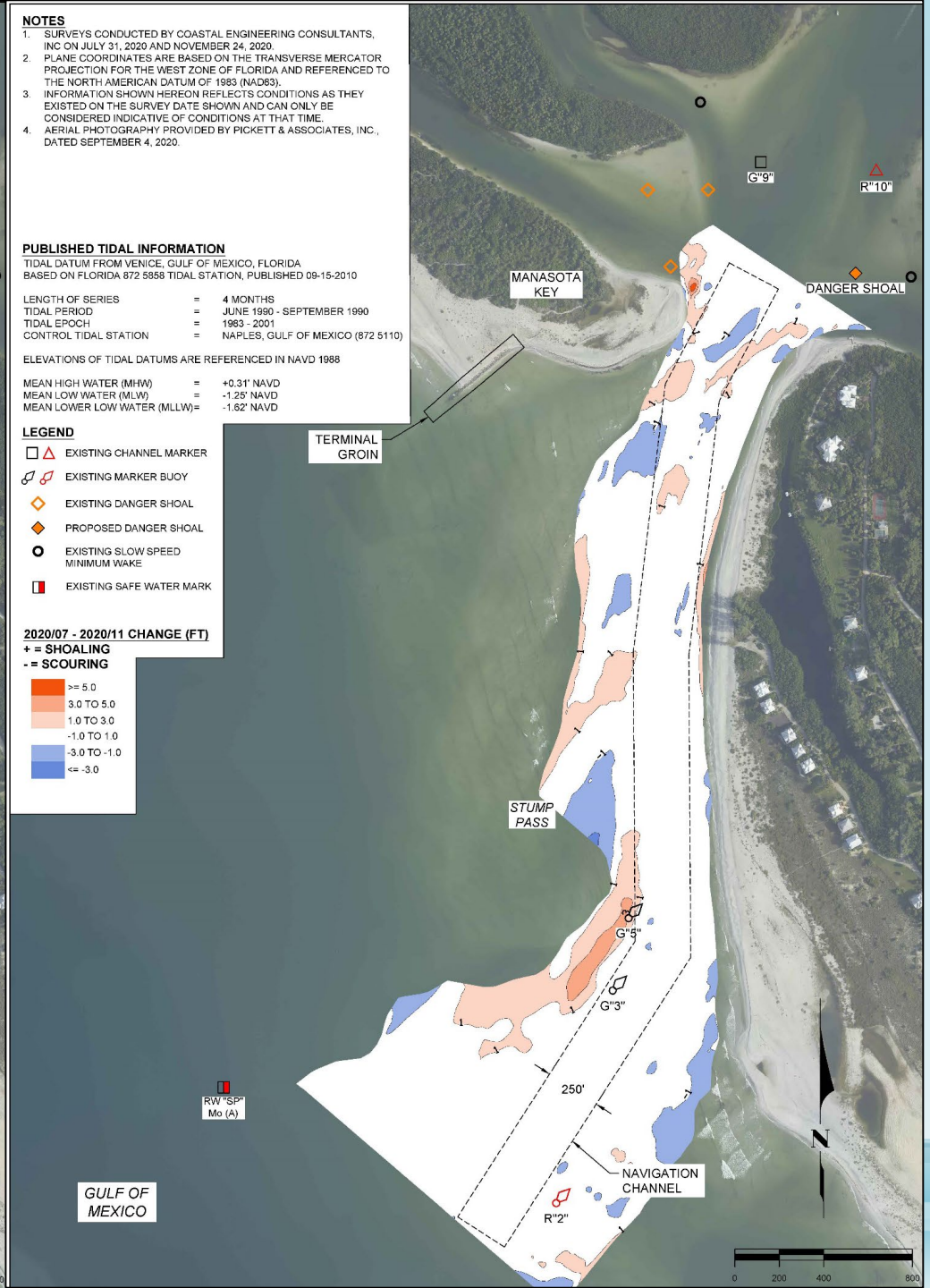
Post-Storm Assessment: Palm-Knight-Don Pedro

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

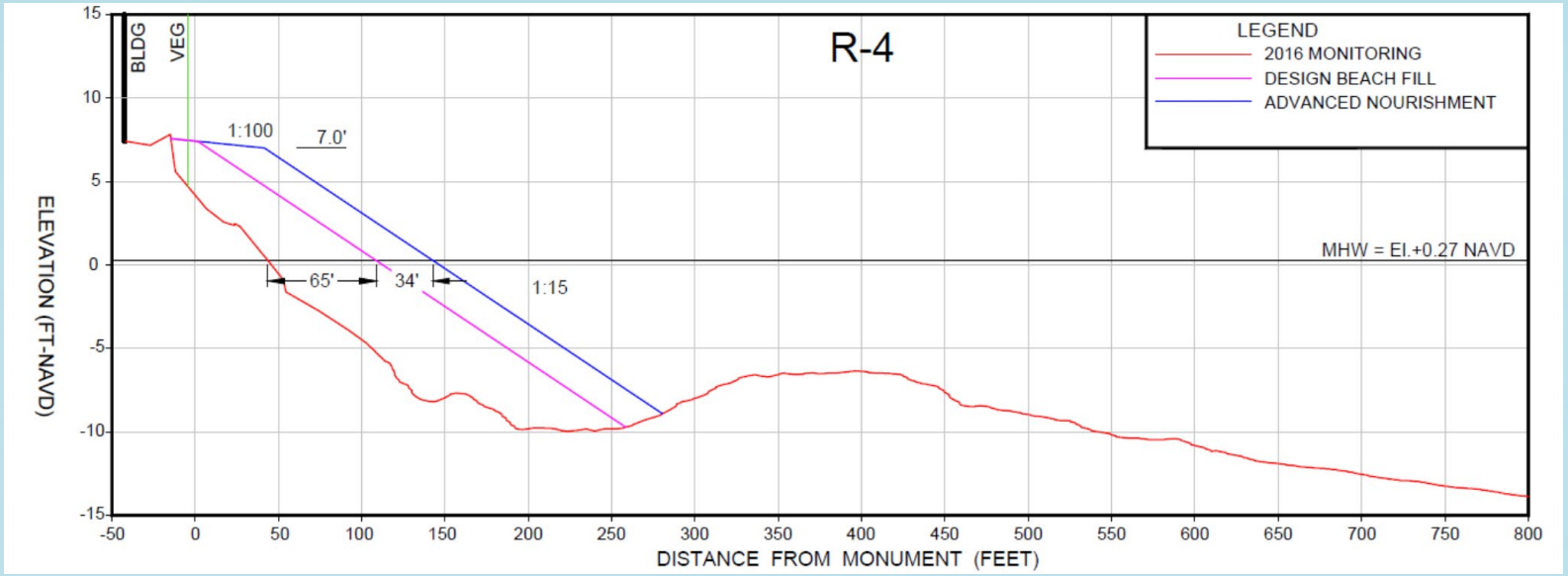


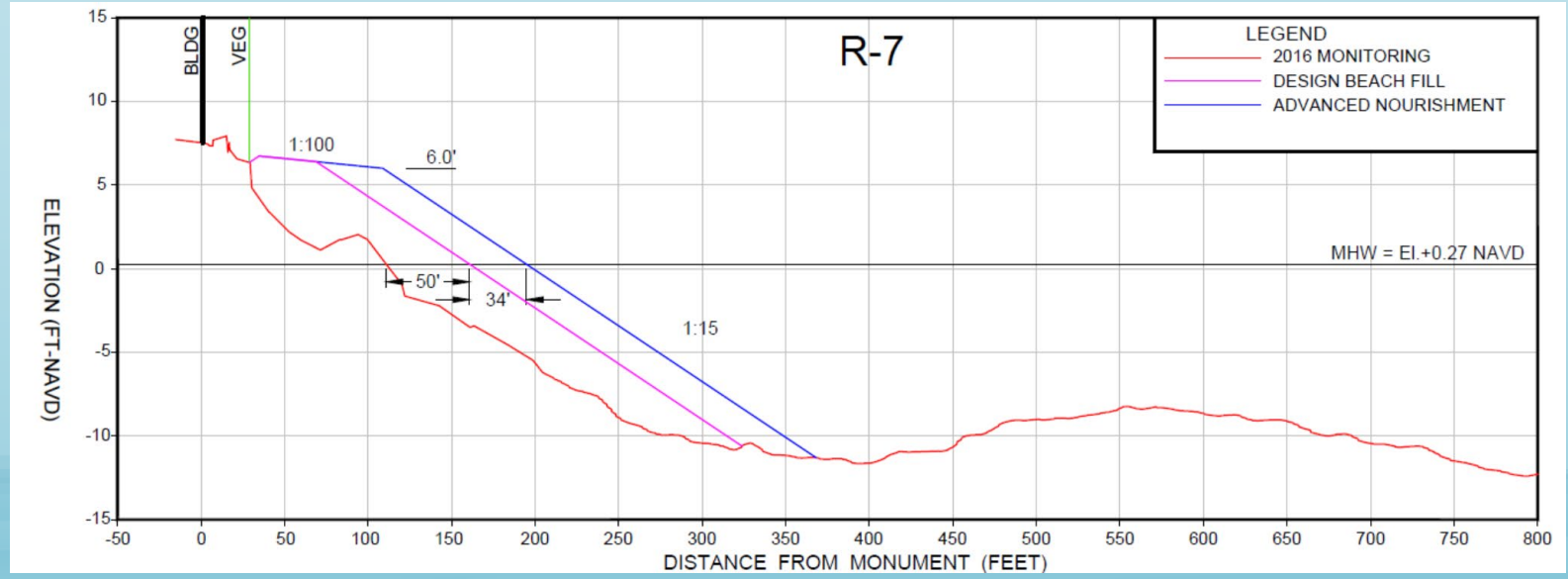
Post-Storm Assessment: Stump Pass





MK Beach Fill Evolution





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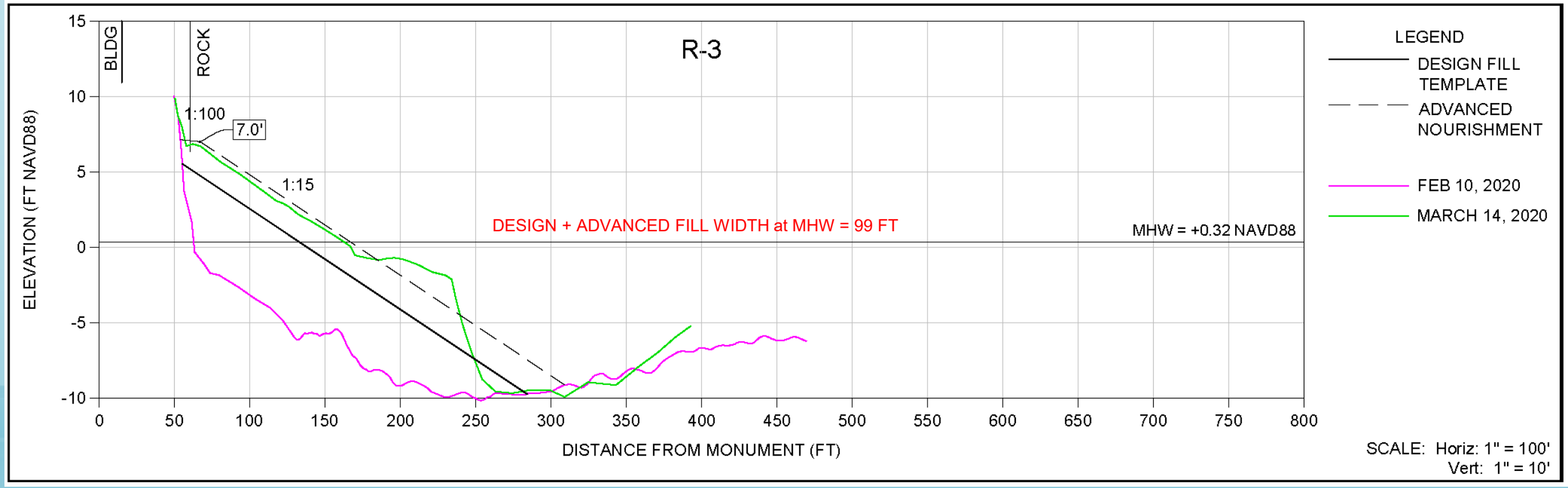

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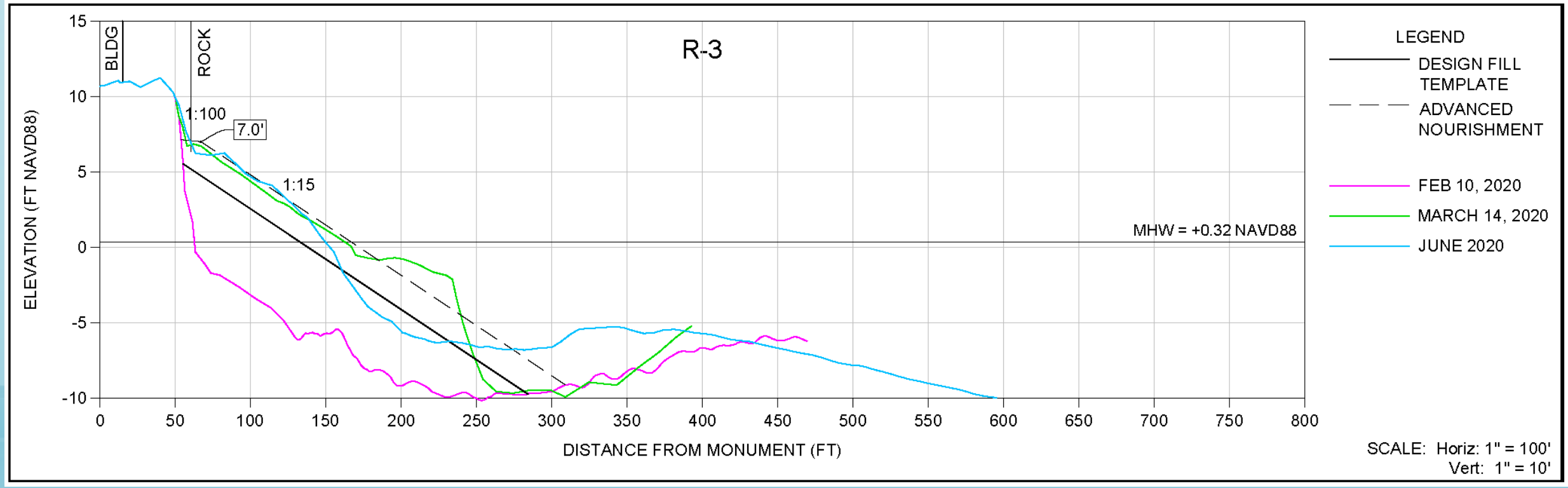

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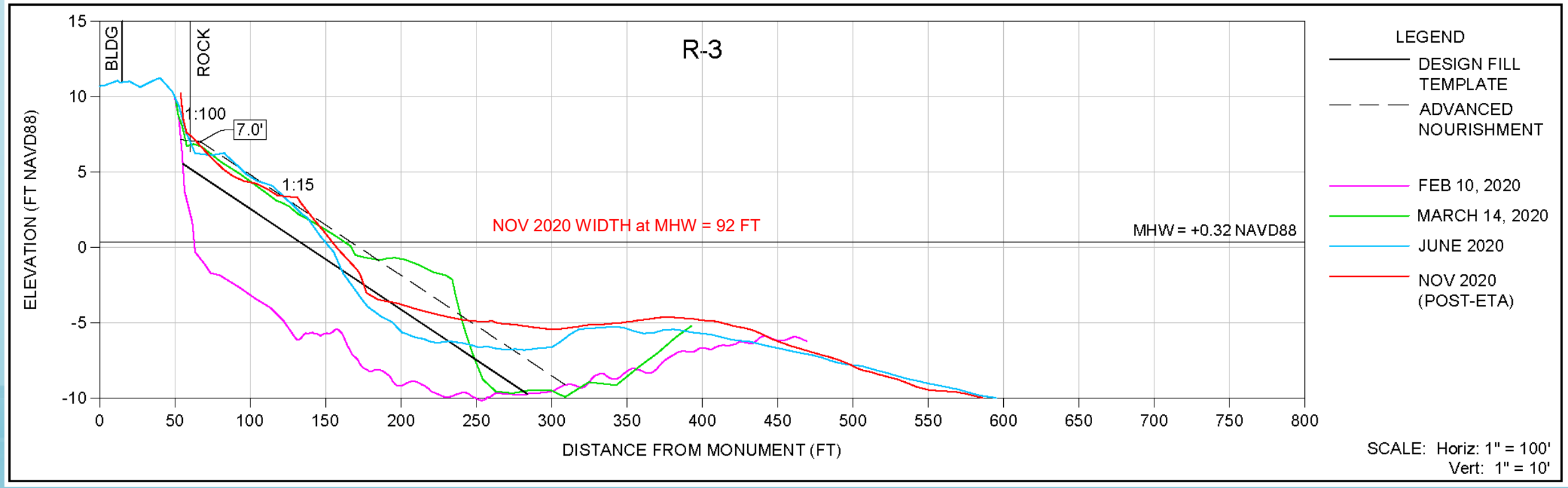

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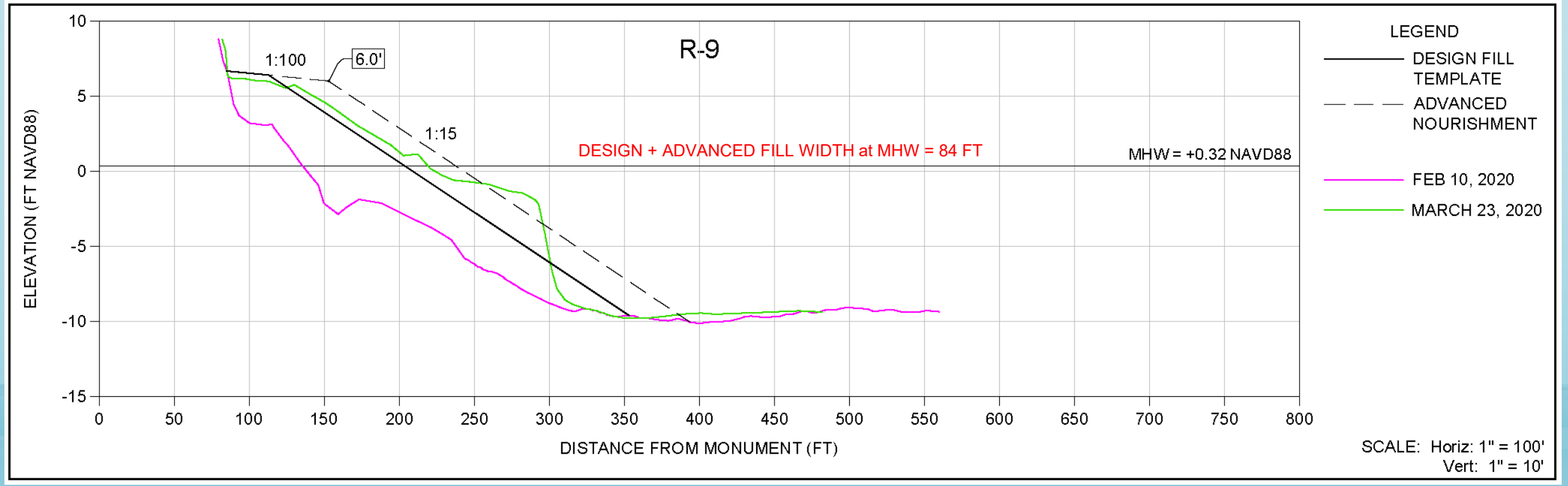

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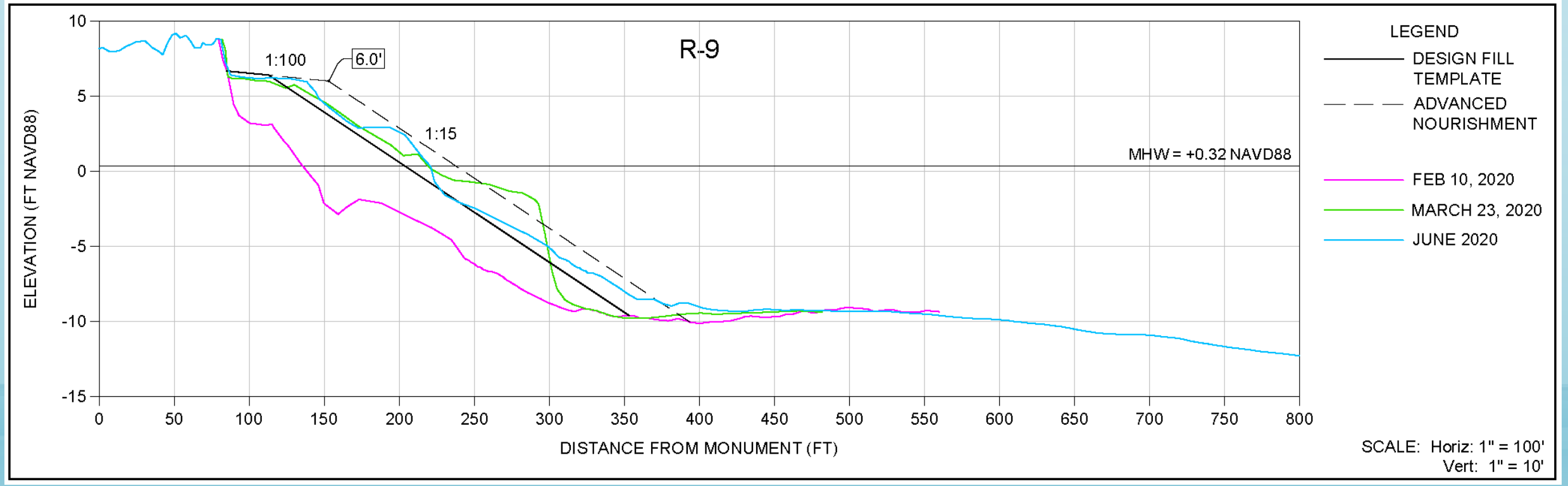

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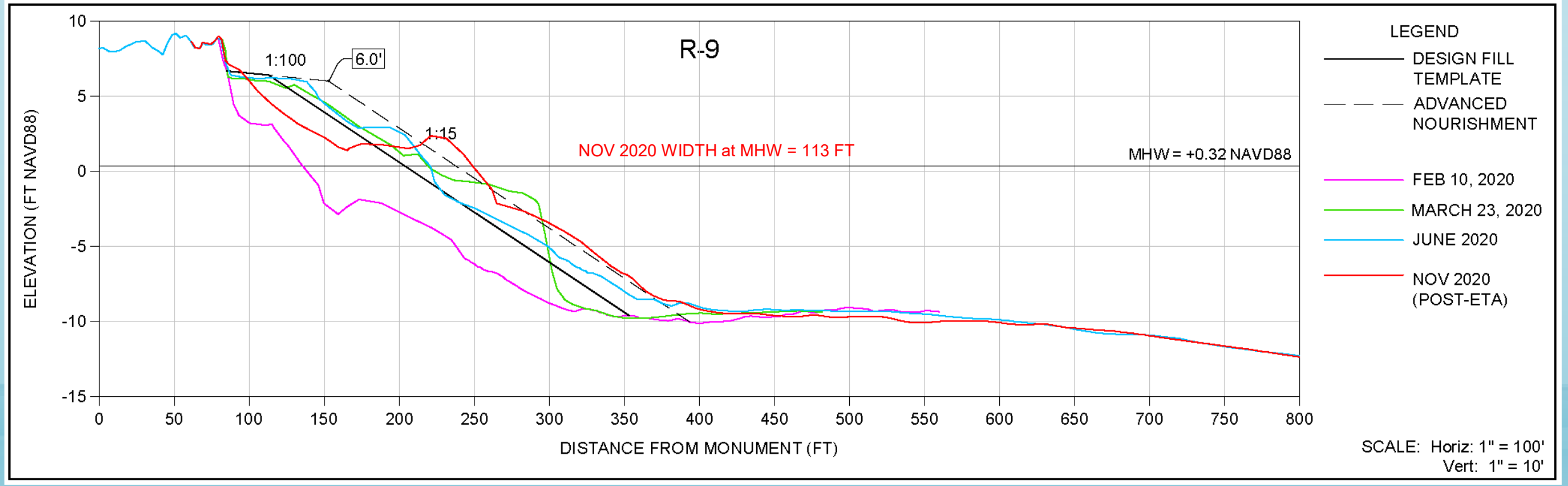

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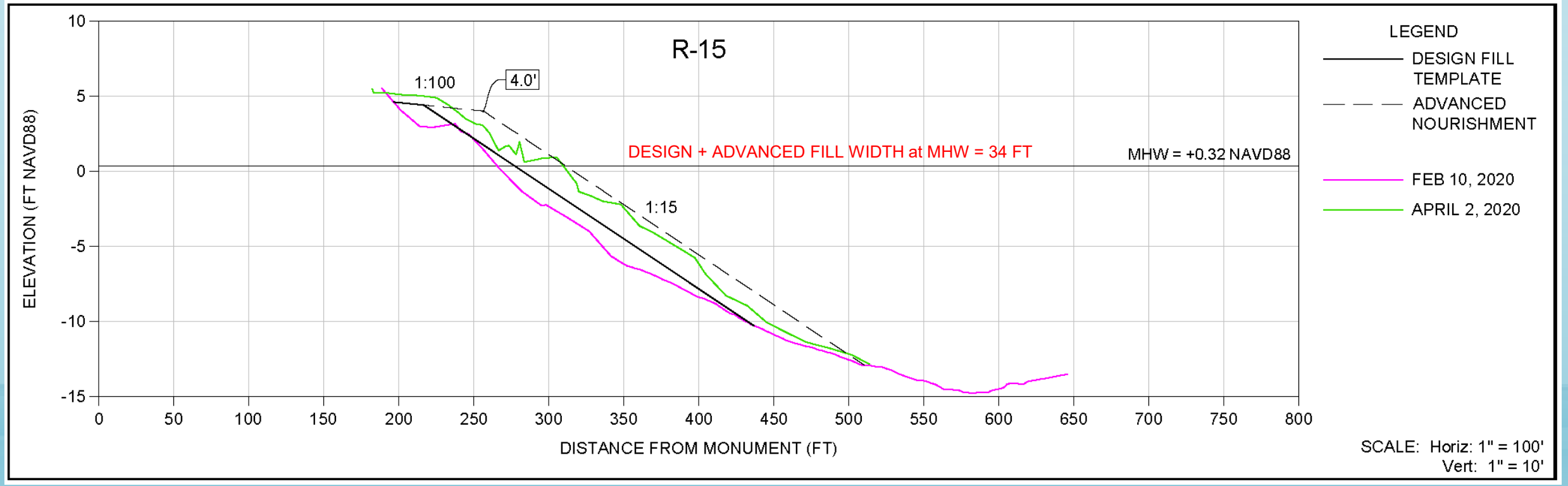

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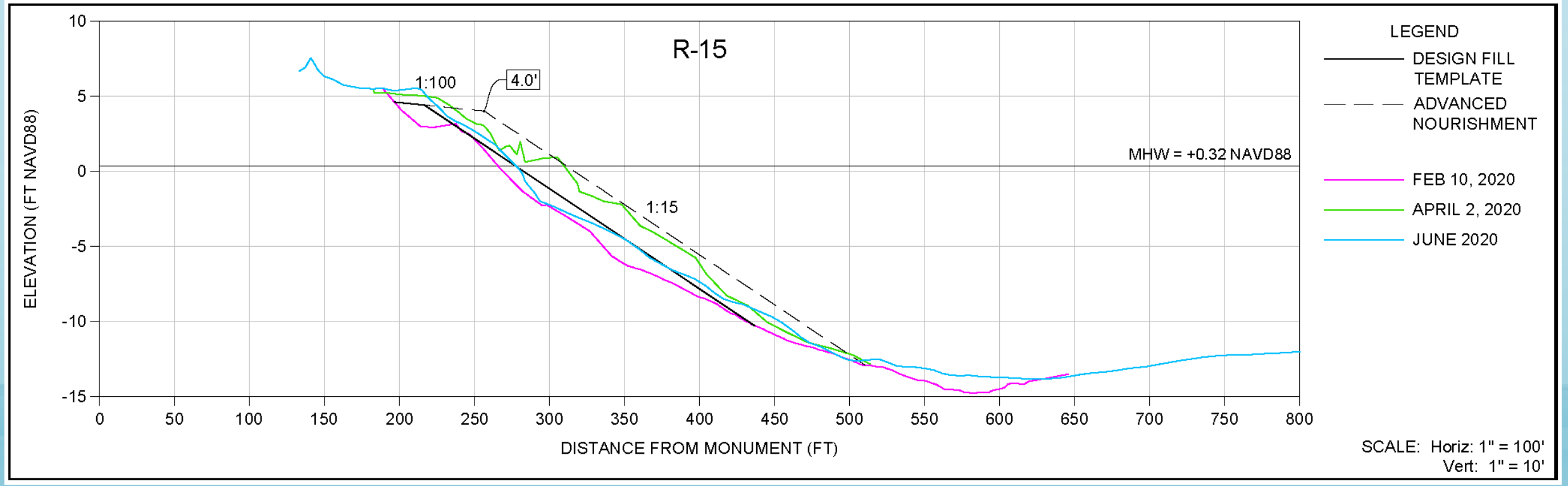

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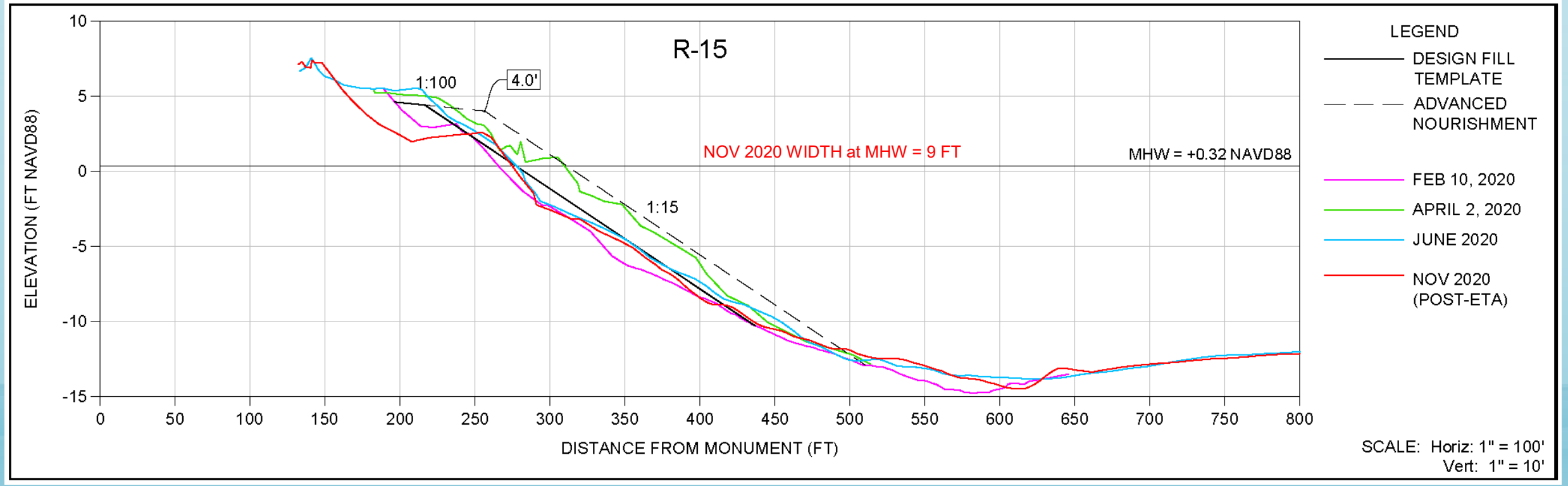
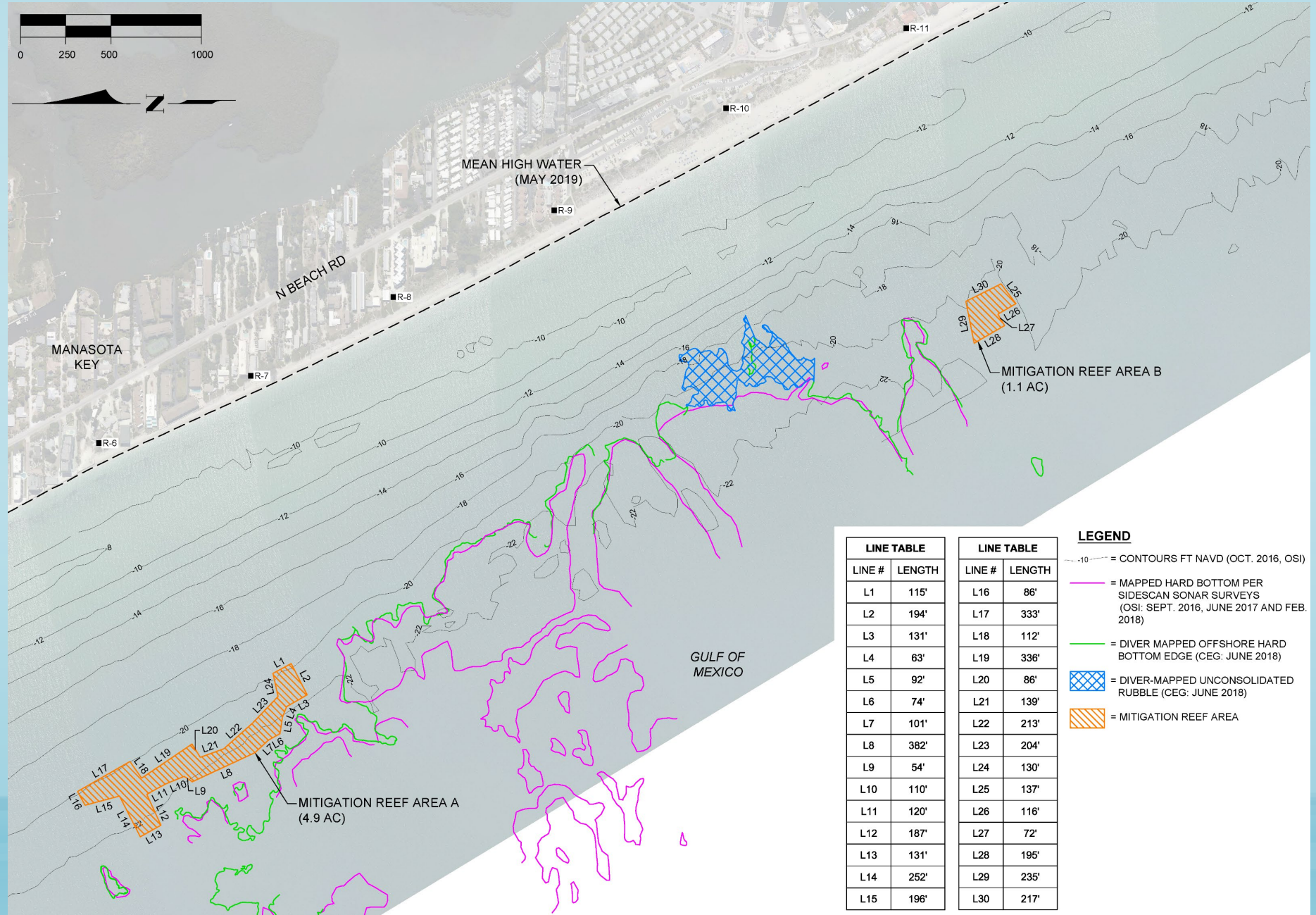


MITIGATION REEF

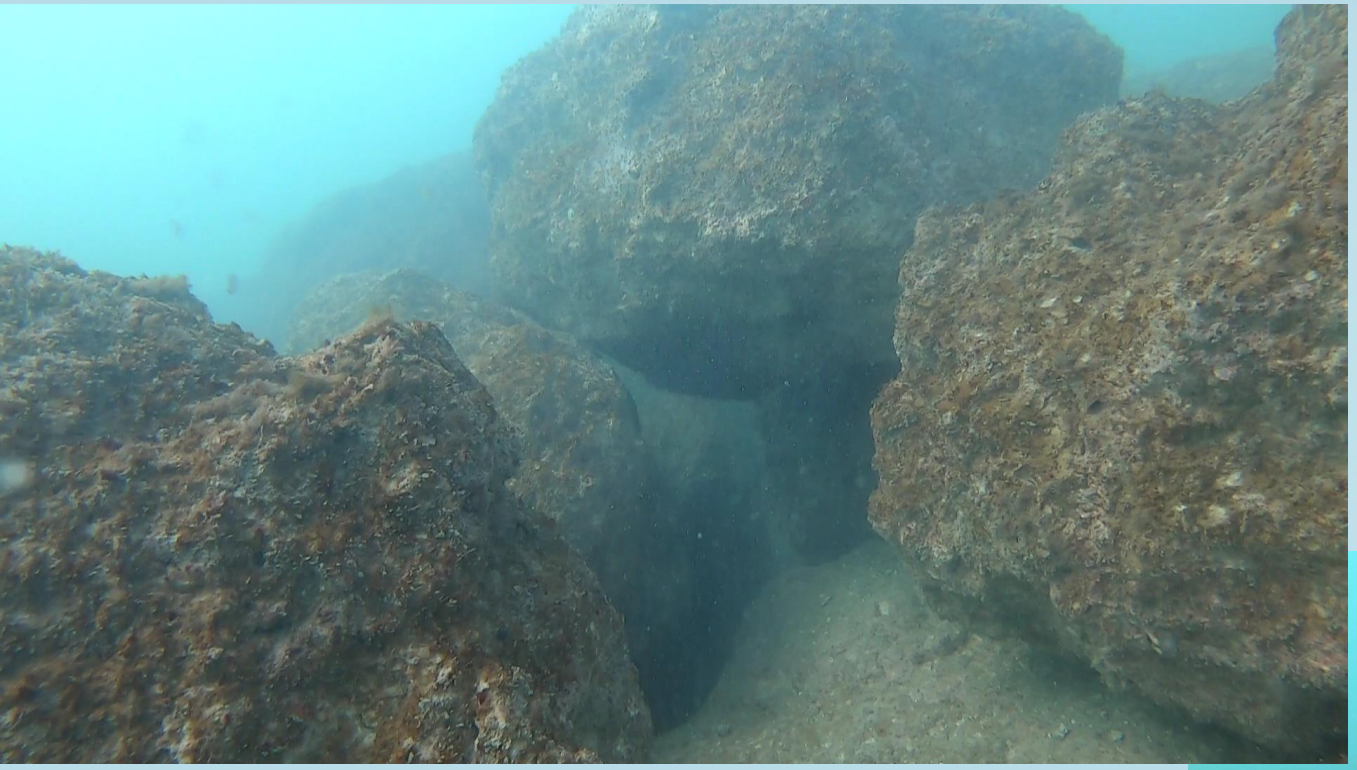


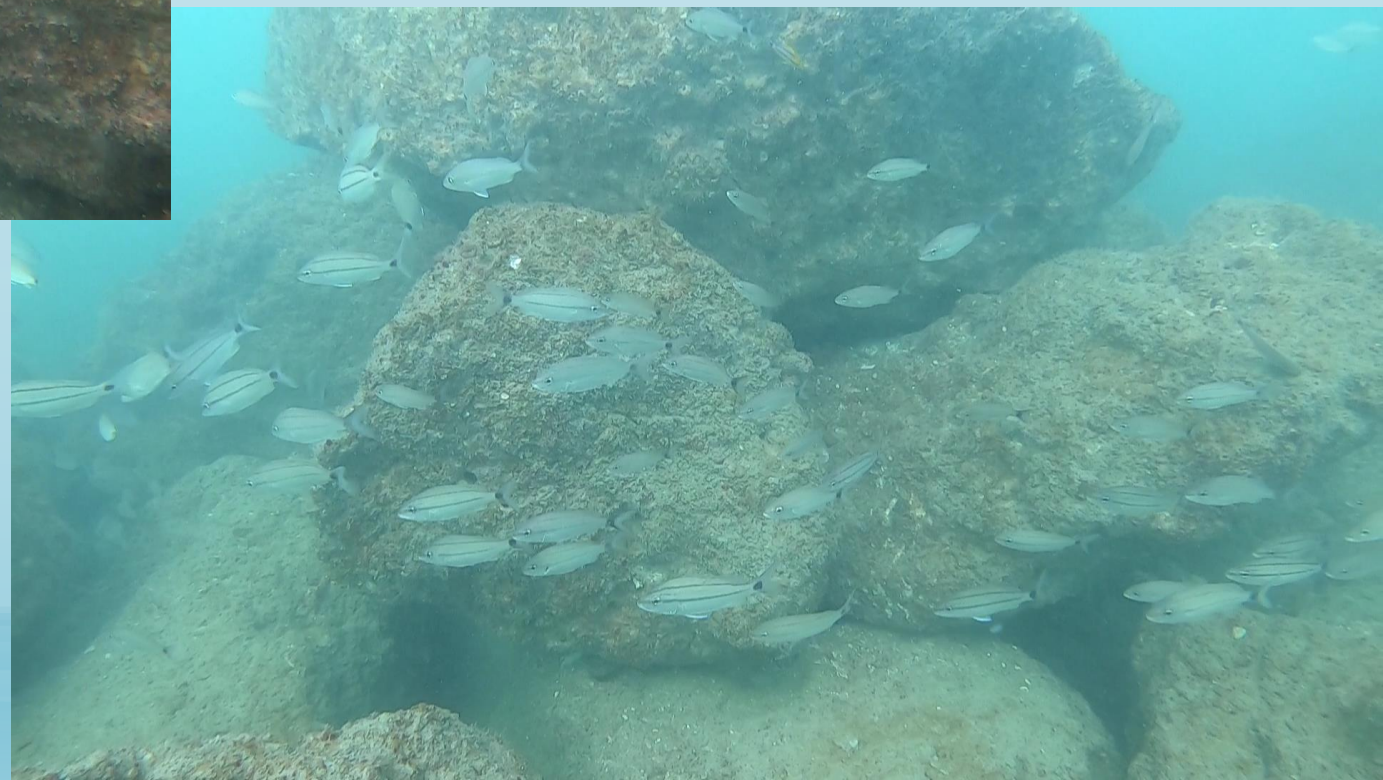
LINE TABLE	
LINE #	LENGTH
L1	115'
L2	194'
L3	131'
L4	63'
L5	92'
L6	74'
L7	101'
L8	382'
L9	54'
L10	110'
L11	120'
L12	187'
L13	131'
L14	252'
L15	196'

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'

Mitigation Reef

Mitigation Reef





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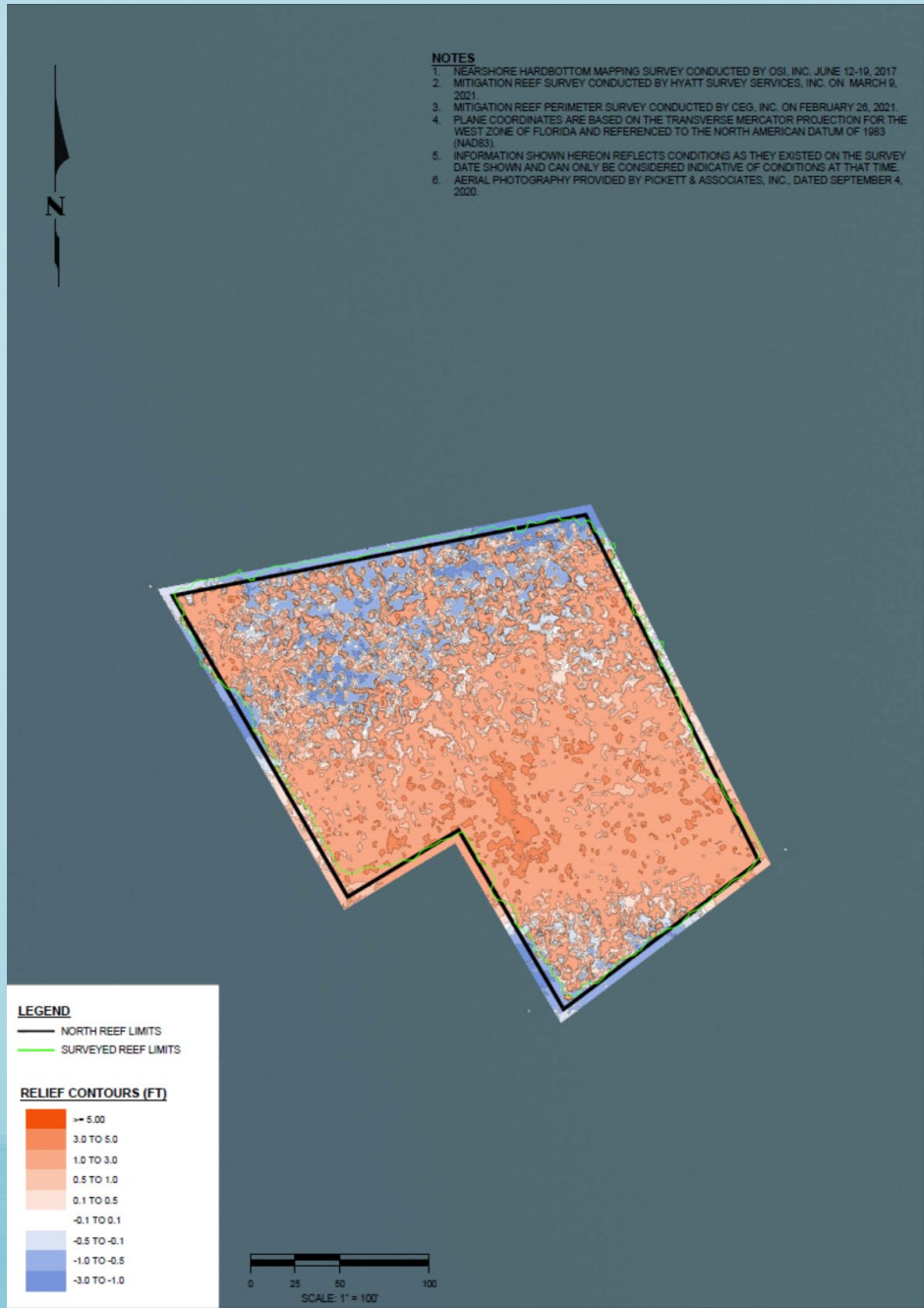
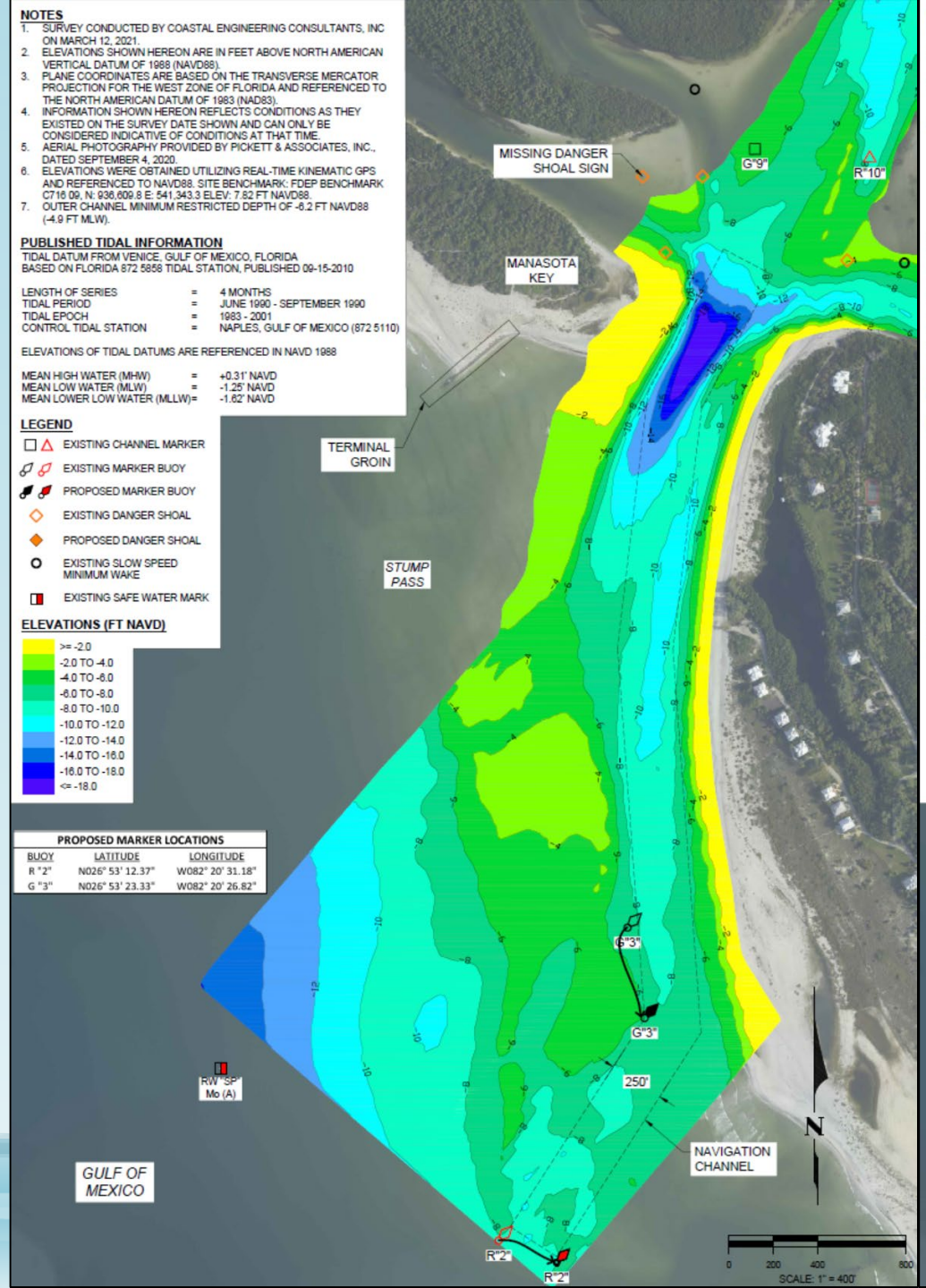


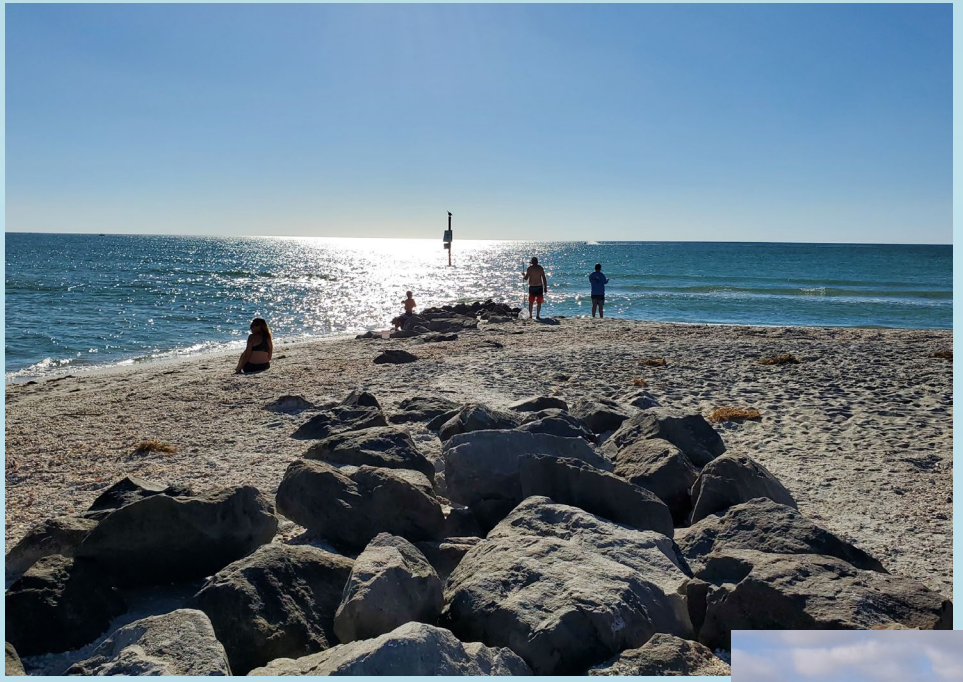
Condition Survey: Stump Pass (3-12 2021)



Stump Pass Maintenance Dredge Schedule

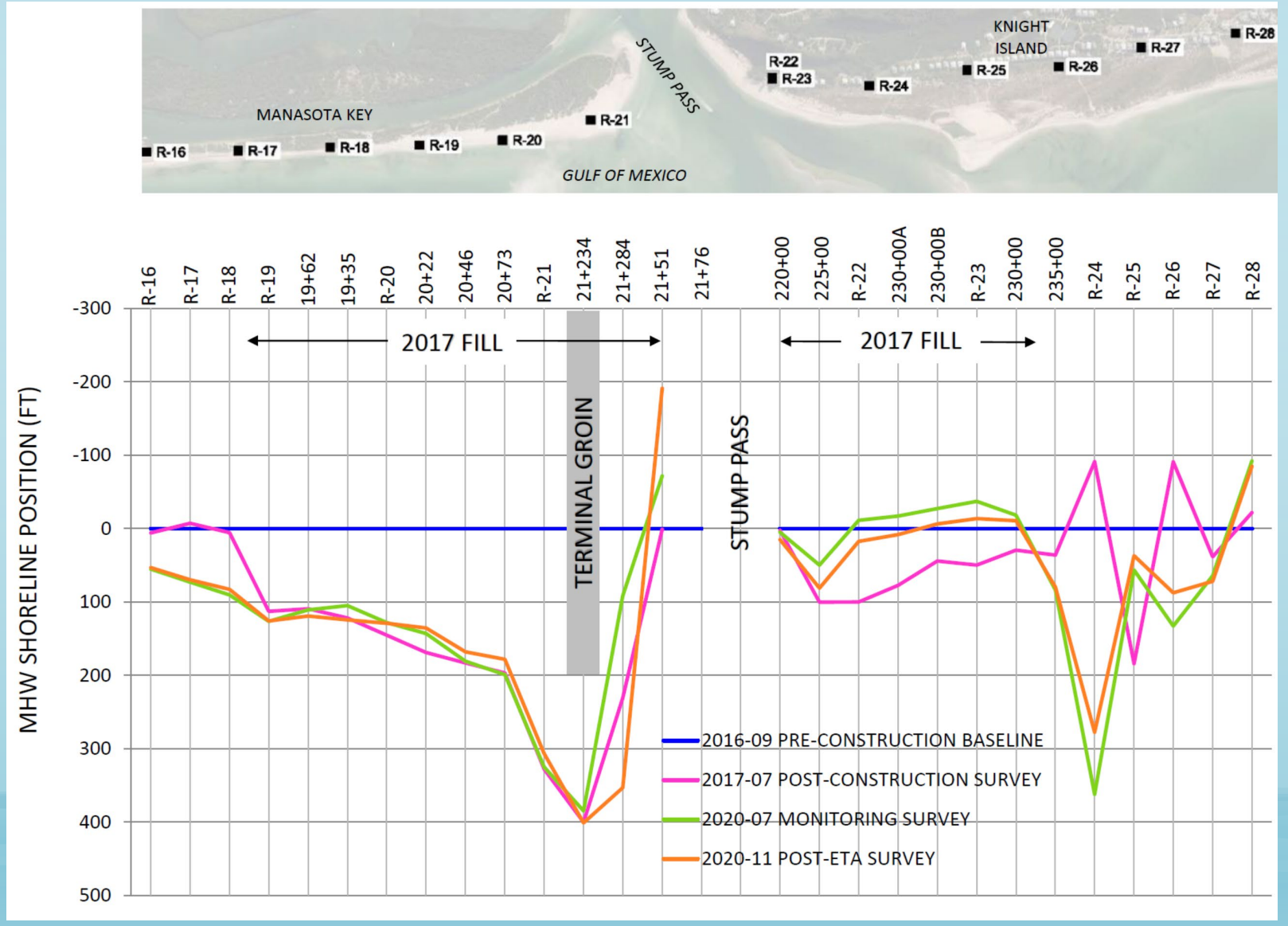
- Apr-Aug (21): Bid Process/Contracting
- Sep-Oct (21): Mobilization
- Nov(21)-Apr(22): Construction

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**