



POST-HURRICANE IRMA UPDATE NOVEMBER 6, 2017



MANASOTA KEY NORTH 10-YR BEACH MANAGEMENT PLAN



OCEAN SURVEYS, INC.



Coastal Eco-Group Inc.

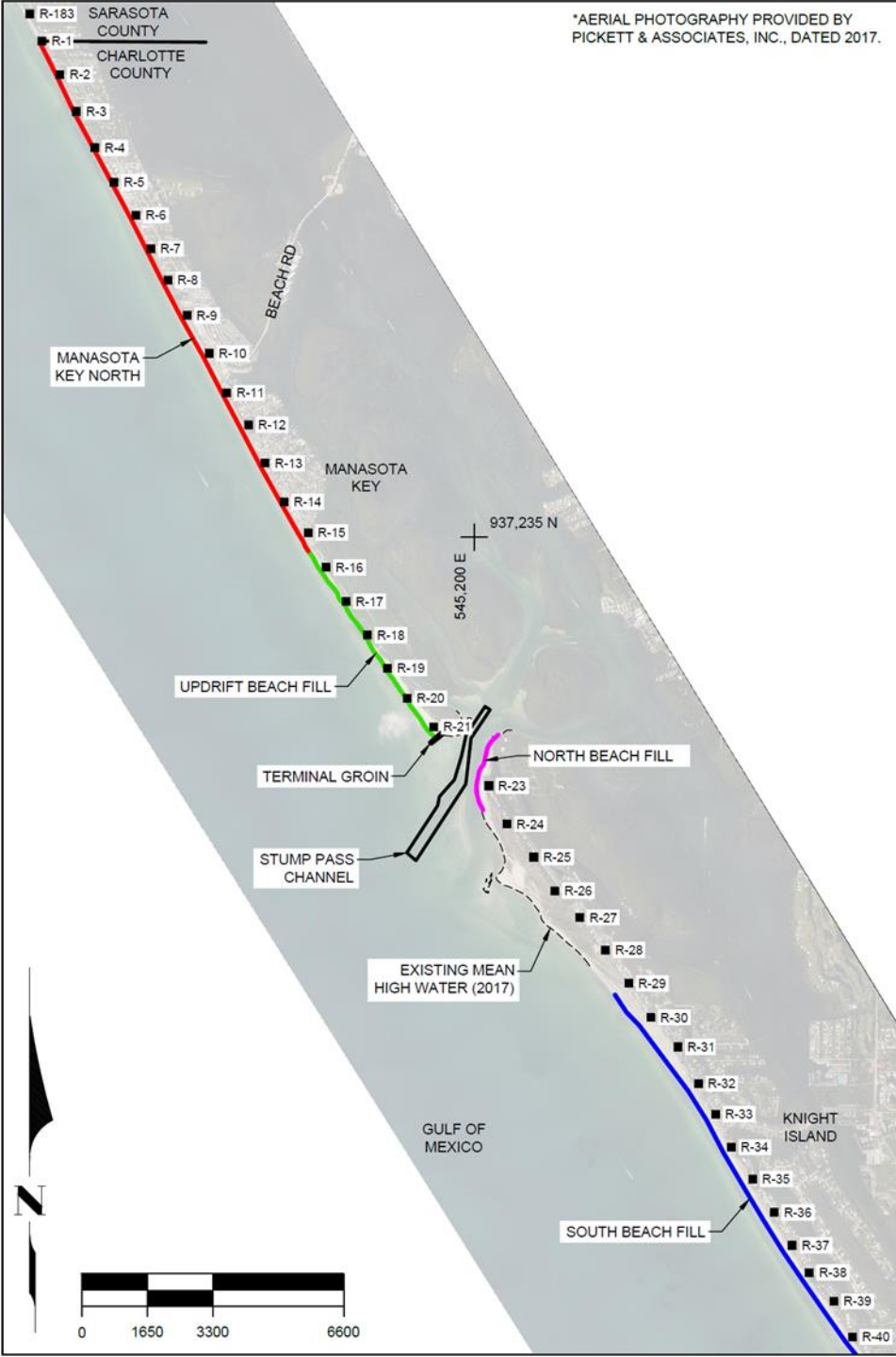


TETRA TECH



OUTLINE

- Project Setting
- Current Conditions
- Recommended Restoration Plan
- Post-Irma Assessment
- Preliminary Opinion of Project Cost
- Schedule



MKN PROJECT AREA

- Sarasota-Charlotte County Line to Stump Pass Beach State Park (R-1 to R15.4)
- Overlaps With County's Existing Erosion Control Project from Englewood Beach Park to State Park (R-9 to R15.4)



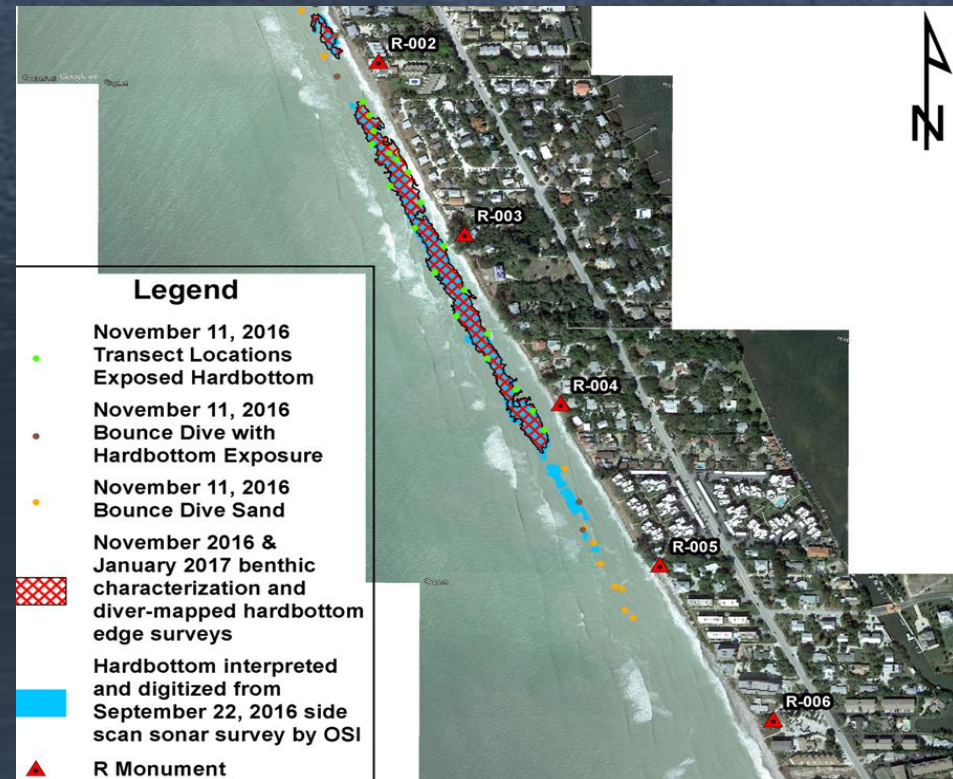
HISTORICAL PERSPECTIVE

- 2001-2003: Sarasota-Charlotte Beach Erosion Study
 - Co-funded by Counties and FDEP
 - Erosion Analysis, Physical & Natural Resource Assessment,
 - Potential Sand Sources, Costs, Funding Approaches
- Beach Restoration Plan – Regional Alternative
 - Blind Pass Park (S) to Chadwick Park (C)
 - **Historical Erosion Rate ~ 0.9 ft/yr 1.1 cy/ft/yr**
 - Small area of exposed hardbottom @ County Line
 - Beach Nourishment to Address Chronic Erosion (R156-R13)
 - 42,600 ft 150-ft wide berm 52 cy/ft
 - 2.2 Mil cy **\$22 Million (2003 Dollars)**
 - 50 / 50 Split amongst stakeholders for support



CURRENT CONDITIONS

- Erosion Rate Accelerated to 4 Ft/Yr from 2001-15
- Erosion Shadow Extended Several Thousand Feet South of Existing Rock Revetments (R5 to R7)
- Residents South of Rock Revetment Installing New Armoring
- Mapped ~ 4.5 Acres of Exposed Nearshore Hardbottom



A LOOK BACK



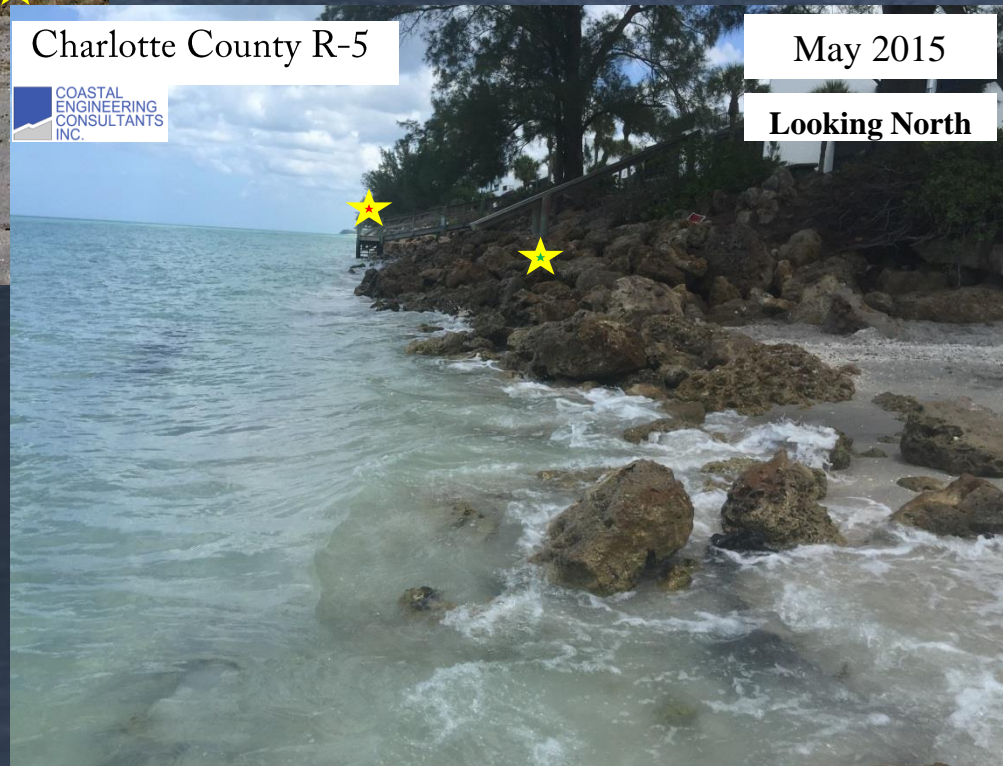
Charlotte County R-5

November 2001

Looking North



**2001 Beach
Erosion Study
Conditions**



Charlotte County R-5

May 2015

Looking North



**2015 Beach
Erosion Update
Conditions**

HINDSIGHT IS 20/20

Charlotte County R-5

November 2001
Looking South

2001 Beach
Erosion Study
Conditions



Charlotte County R-5

May 2015
Looking South

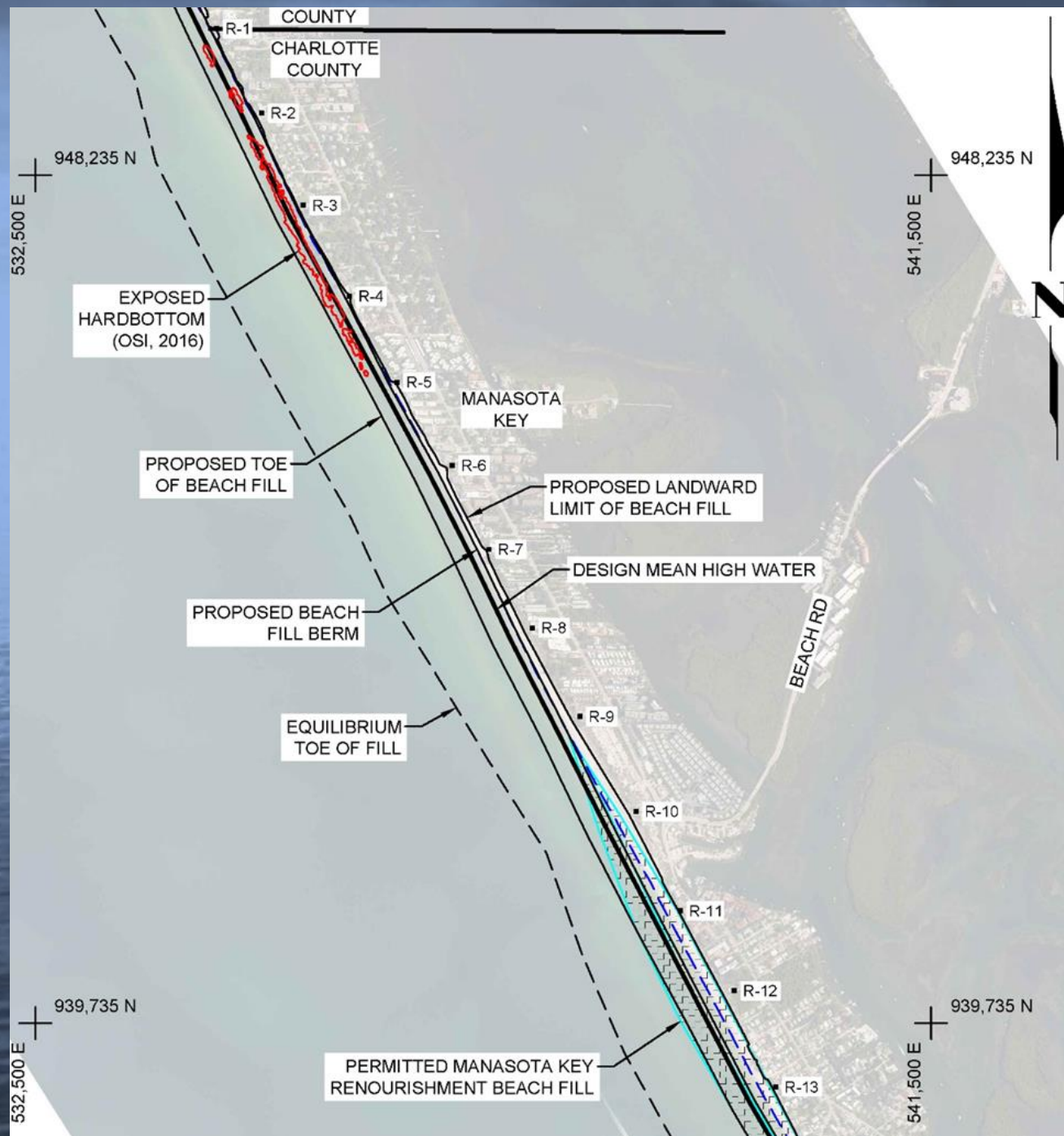
2015 Beach
Erosion Update
Conditions



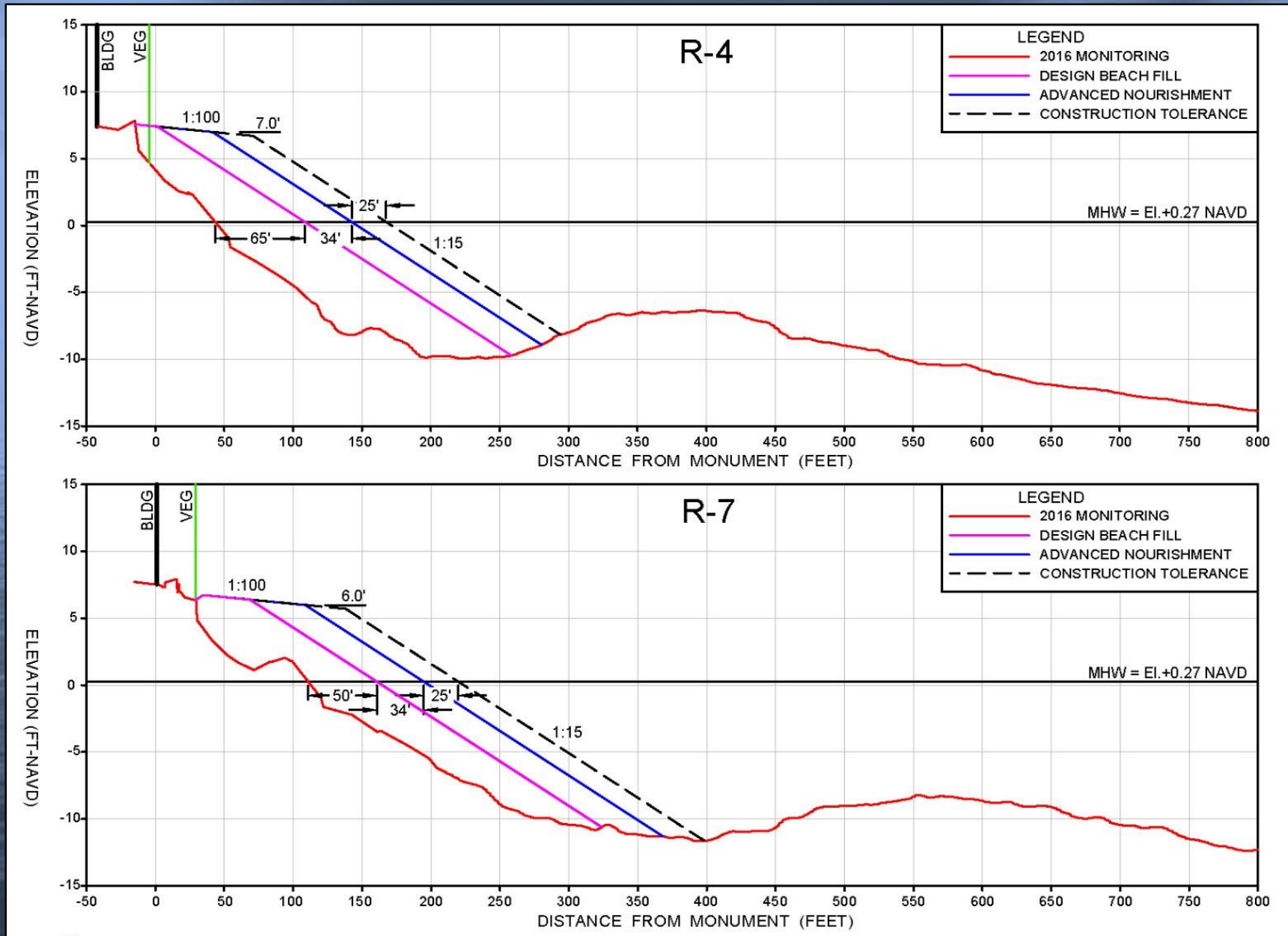
RECOMMENDED RESTORATION PLAN

- **Beach Fill Template**
 - Design Storm ~ 25-Year Return Interval
 - 50 ft Wide Design Template
 - 14 ft Wide for Advanced Nourishment (8-Yr Interval)
 - 20 ft Wide for Equilibrium Profile Adjustment
 - 15 ft of Additional Width along Existing Armoring
 - Total Beach Width = 99 ft (Armored), 84 ft (Unarmored)
 - Total Volume = 625,000 CY (> 55 CY/LF Avg Density)
 - For Permitting – Include 25 ft for Construction Tolerance
- **Nearshore Hardbottom Impacts**
 - Over 4 acres will be covered requiring mitigation
 - Construct artificial reef using native limestone

DESIGN PLAN



DESIGN TEMPLATES



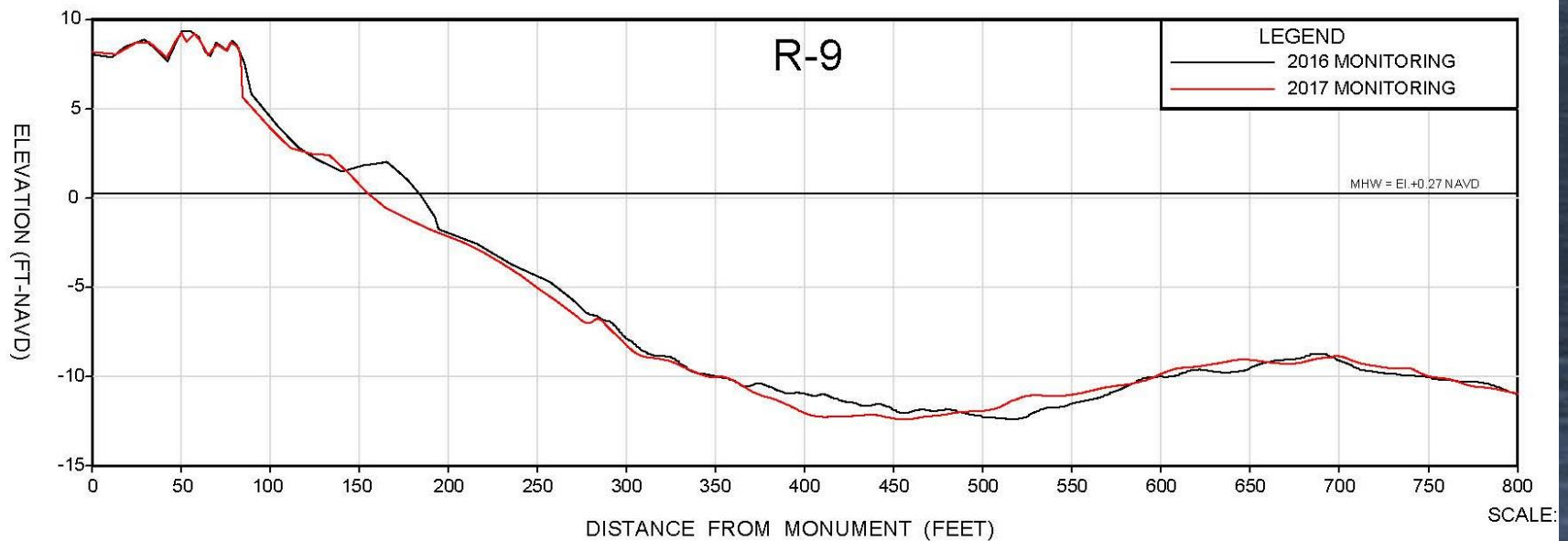
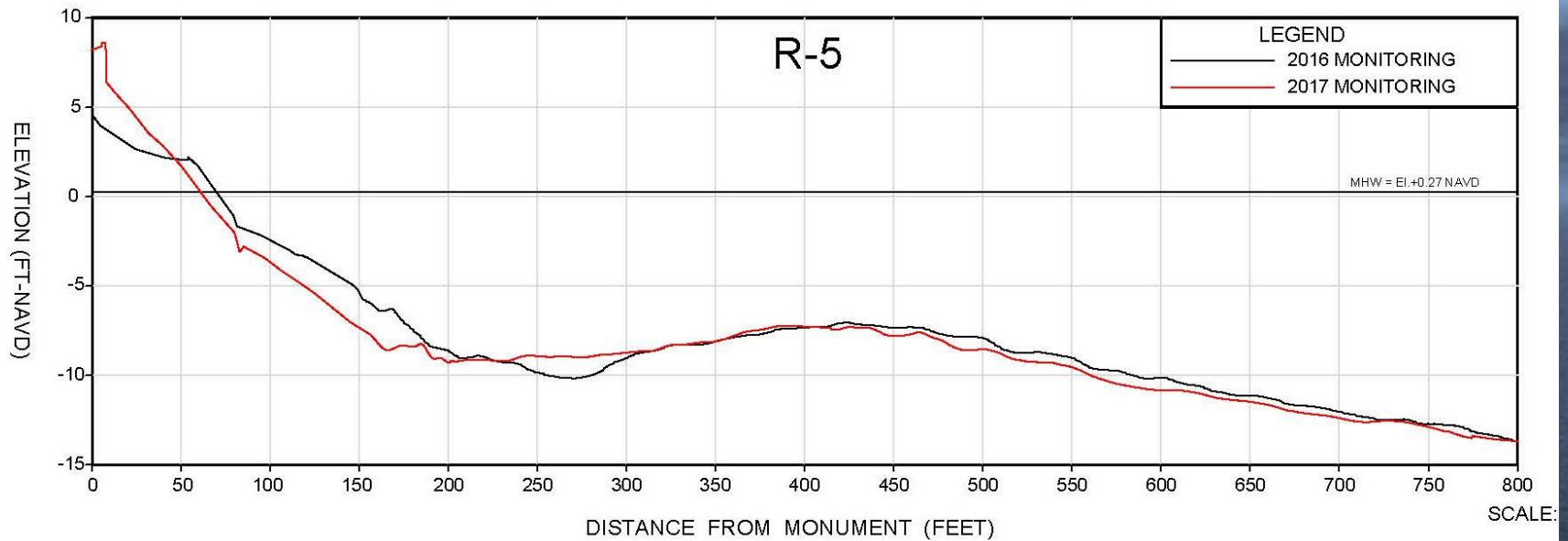
POST-IRMA CONDITIONS



- Some Segments Experienced Erosion While Other Segments Experience Accretion
- Minor Flanking of Armoring Structures
- No Net Increase in Design Quantities for Restoration Plan



PROFILE COMPARISONS





PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST

- Elements (Expressed in 2019 Dollars)
 - Mobilization / Demobilization; Beach Fill; Mitigation
- Charlotte linking one segment of existing project (South Beach Fill) with Manasota Key in 2019 – Eliminates one mobilization effort (~ \$5 Million Dollar Savings)

Item	Unit	Quantity	Unit Price	Total
Mob / Demob	Job	1	\$6,061,000	\$6,061,000
Man Key (R1-R11)	CY	570,000	\$18.48	\$10,534,000
Mitigation	AC	6.38	\$1,139,000	\$7,266,000
South Beach (R29-R40)*	CY	260,000	\$18.12	\$4,711,000
			TOTAL	\$28,572,000

* Exclusive of Hurricane Irma Erosion Volume



SCHEDULE

- Summer 2017: Additional Borrow Area Delineations, Mitigation Reef Design
- September-October 2017: Post-Irma Assessments, Plan Updates
- November 2017: JCP Submittal
- November 2017 – Spring 2019: Permit Processing
- Summer 2019: Bid Process
- Fall 2019: Construction Commencement