Closure of Rollover Pass, Galveston Co. Texas:

- ✓ *Reduce GIWW Dredging Requirements*
- ✓ *Reduce Gulf Coast Beach Erosion*
- ✓ *Restore Pre-Pass Salininity to East Bay*

David L. Stites, Ph.D., Michael P. Whelan, P.E., D.CE. Michael Trudnak, P.E. , E. Ray Newby, P.G., and Chris Ellis

Engineering With Nature: Designing Navigation Infrastructure for Greater Environmental Sustainability

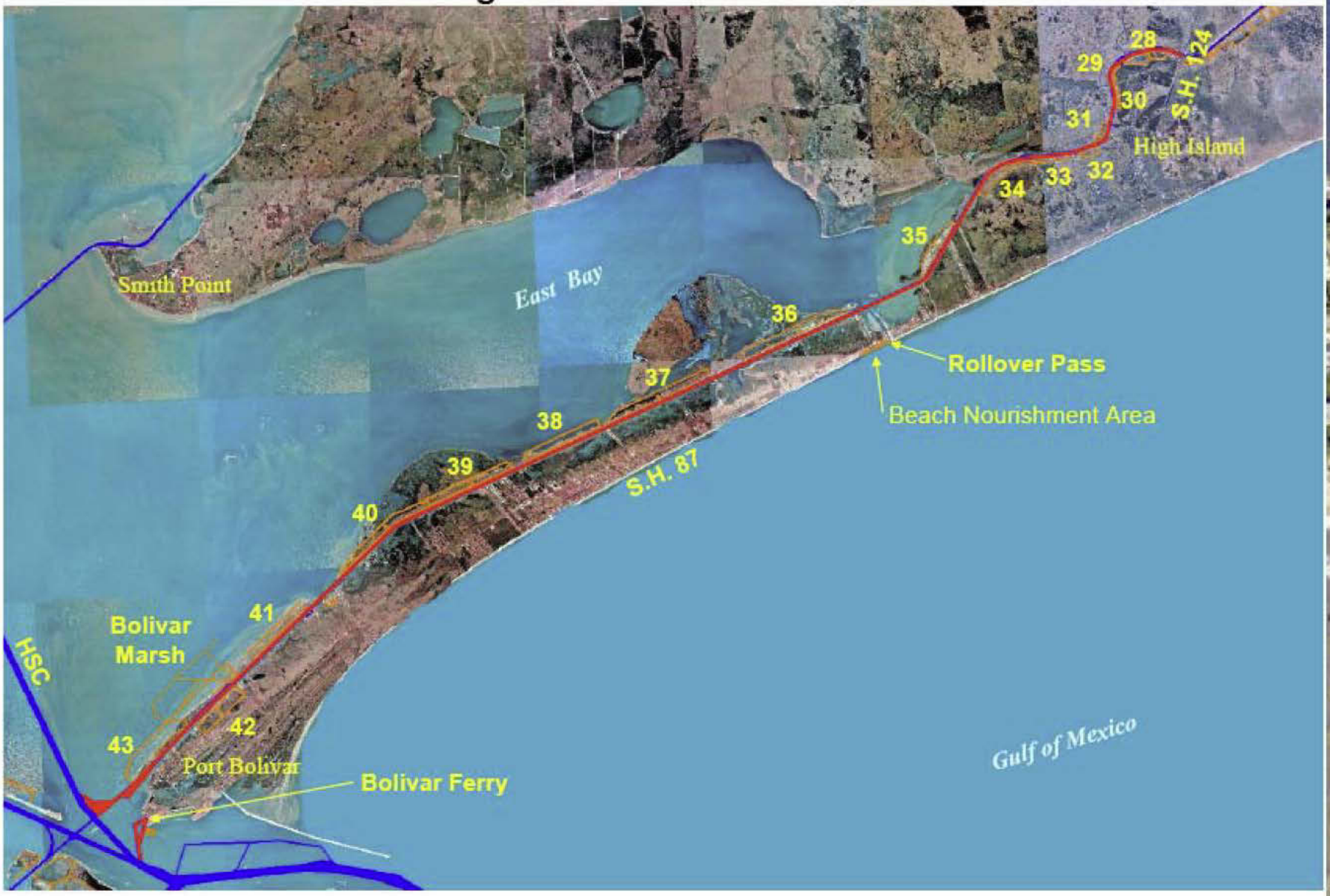
USACE Workshop, Charleston, SC September 2011

Rollover Pass, Galveston County

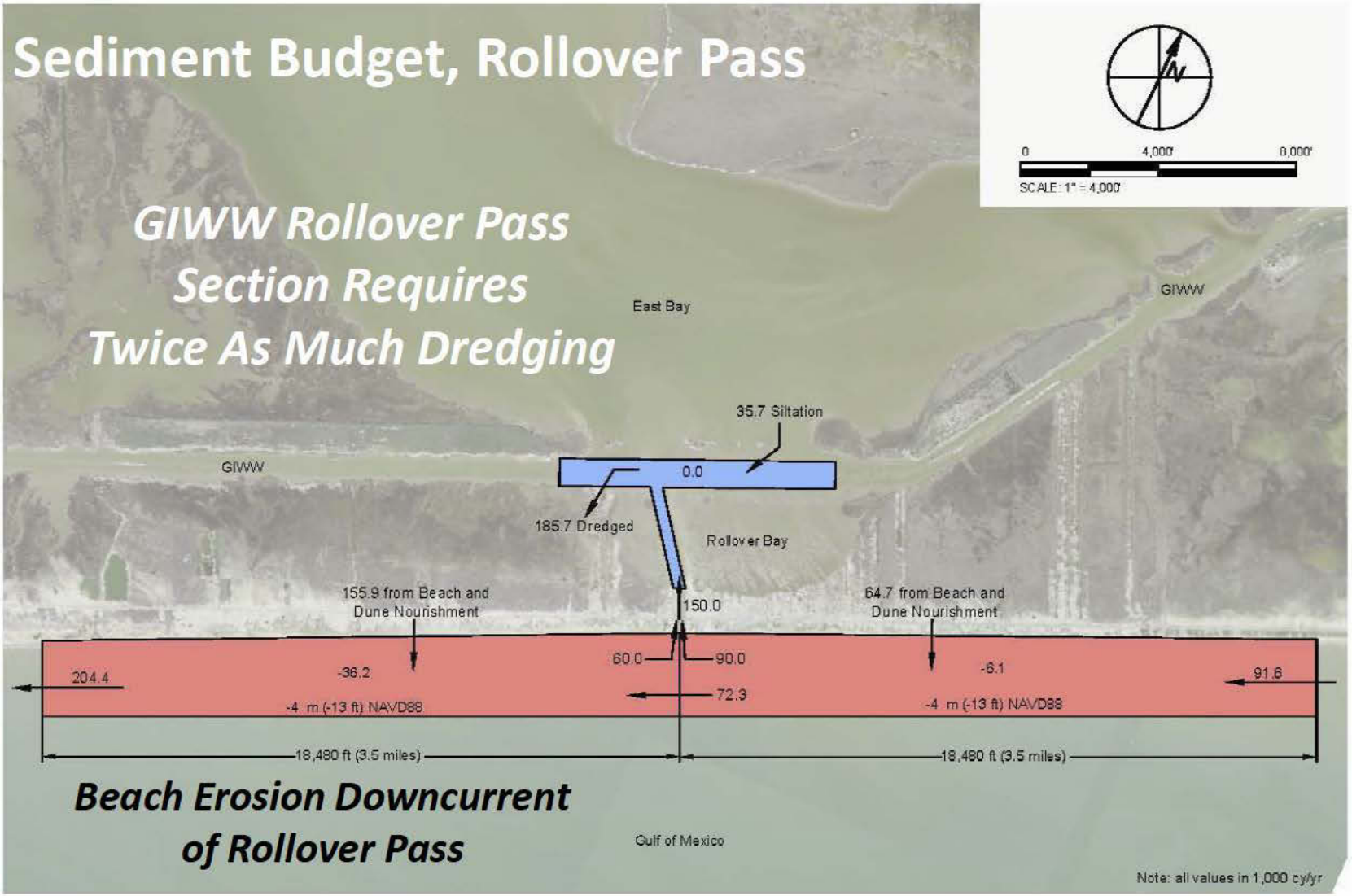
Image courtesy of the U.S. Geological Survey

US Army Corps of Engineers®
Galveston District

GIWW – Gulf Intracoastal Waterway
High Island to Port Bolivar



Gulf Intracoastal Waterway
East Galveston Bay
Constructed – 1955, for Recreational Fishing
Gilchrist, Texas
Rollover Pass
Ebb Tide
Ongoing Shoaling, Gulf Intracoastal Waterway
Ongoing Erosion, Gulf Beach
Salinity Changes, East Galveston Bay
Gulf of Mexico



TAYLOR ENGINEERING INC.
10151 Deerwood Park Blvd., Bldg. 300, Suite 300
Jacksonville, Florida 32256
CERTIFICATE OF AUTHORIZATION # 4815

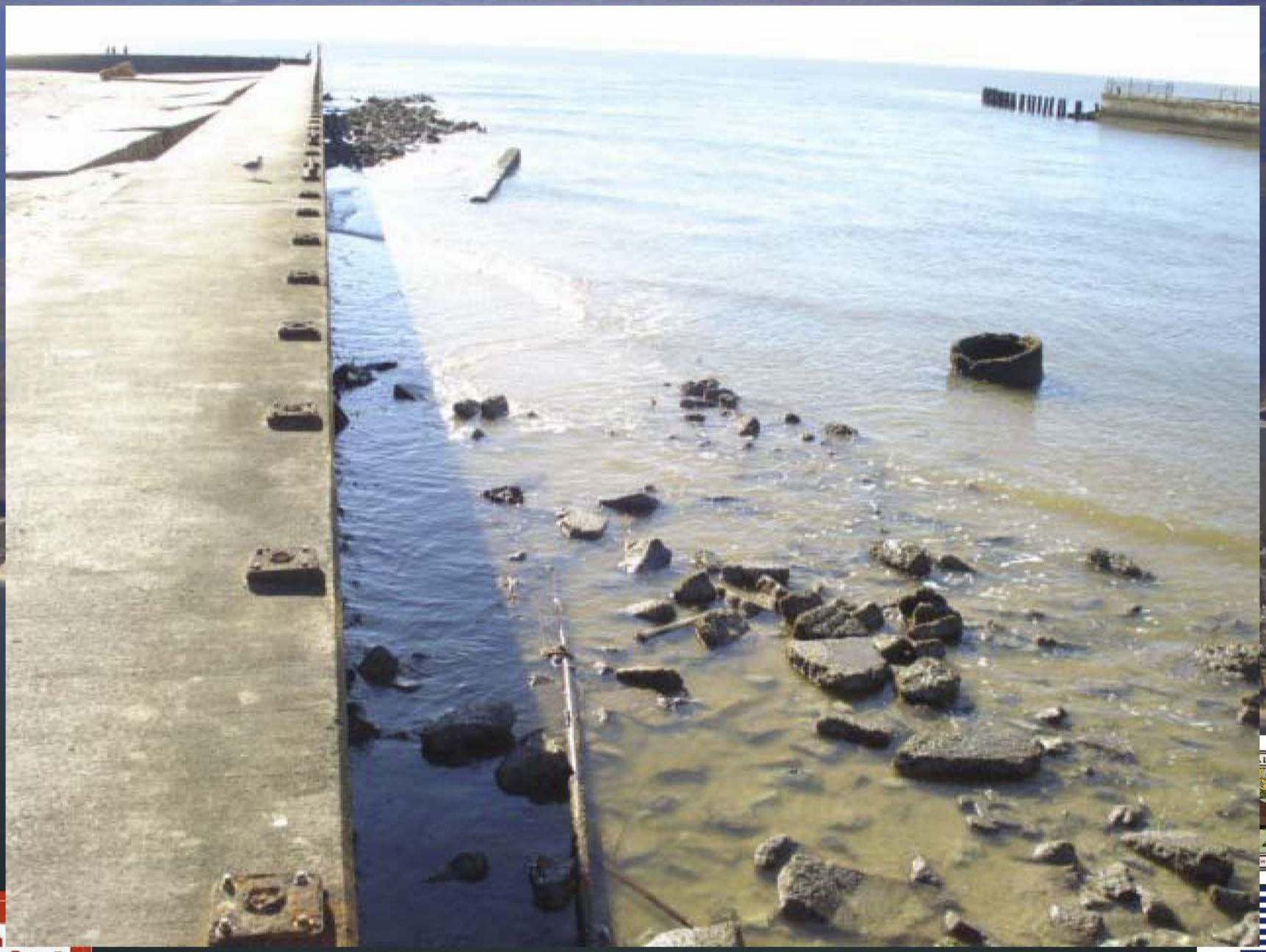
Figure 6
Sediment Budget Alternative 2

PROJECT	C2009-063
DRAWN BY	JCH
DATE	NOV 2009

Downdrift Erosion with Annual Beach Nourishment

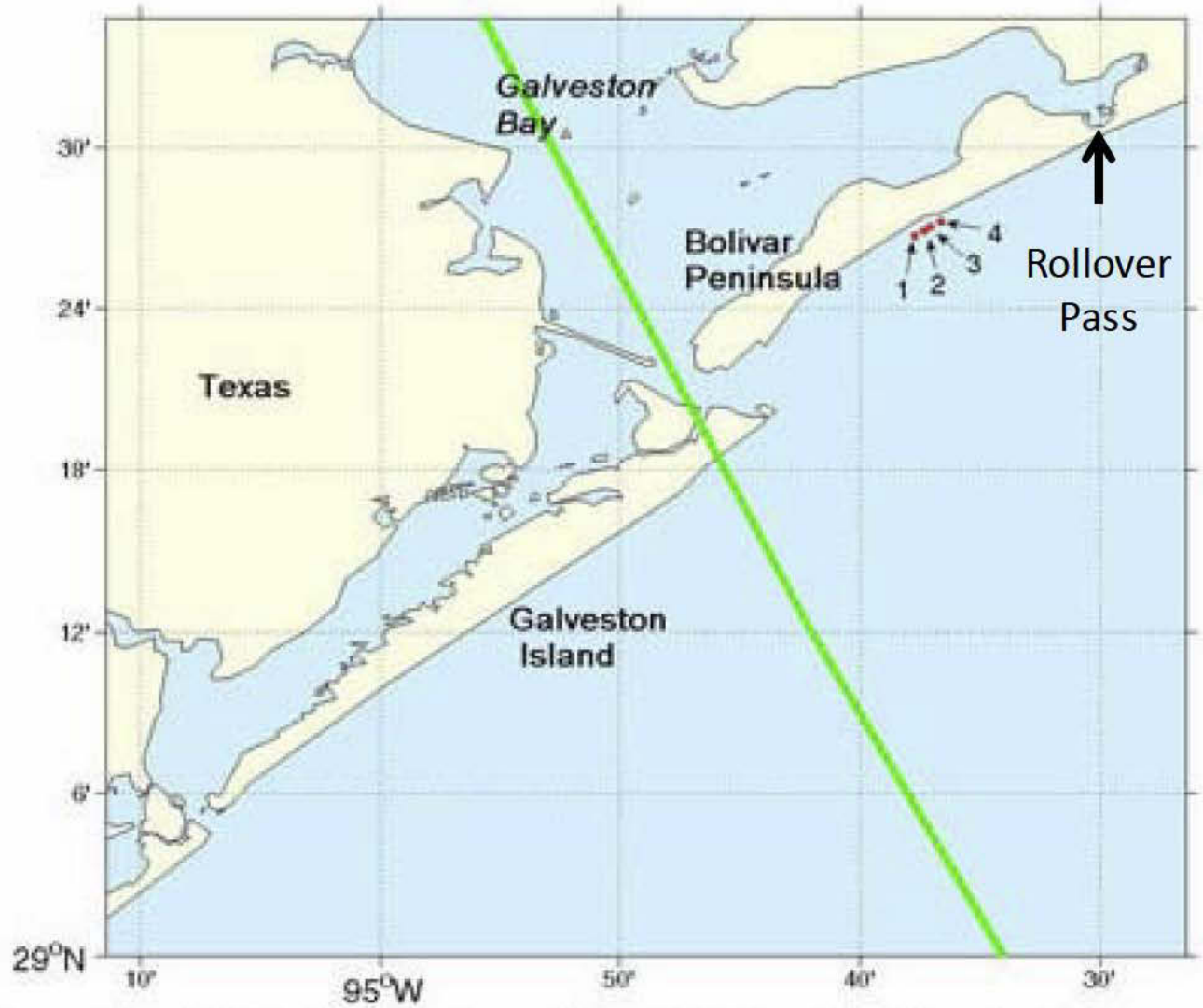
2008
Pass conditions prior to Hurricane Ike

Pass in poor condition; failing sheetpile walls,
Beach erosion ongoing; accelerating?
USACE interested in dredging cost sharing, pass closure alternatives



Rollover Pass after Sept 14, 1961 Hurricane

Gilchrist, Texas – 400+
permanent residences



Locations index for photo pairs of Bolivar Peninsula, TX.
Green line represents the storm track of Hurricane Ike.

Hurricane Ike, September 9, 2008

Gilchrist, Texas, Pre-Ike Condition

Gilchrist, Texas
September 14, 2008

Hurricane Ike presented the Texas Legislature the opportunity to close Rollover Pass

1. Legislative Property Buyout and Closure Funding – 2008
2. Pass Closure Feasibility Study, Permitting (US Army Dredge and Fill Permit), Design: 2009 – 2011
3. Construction 2012

TAYLOR ENGINEERI

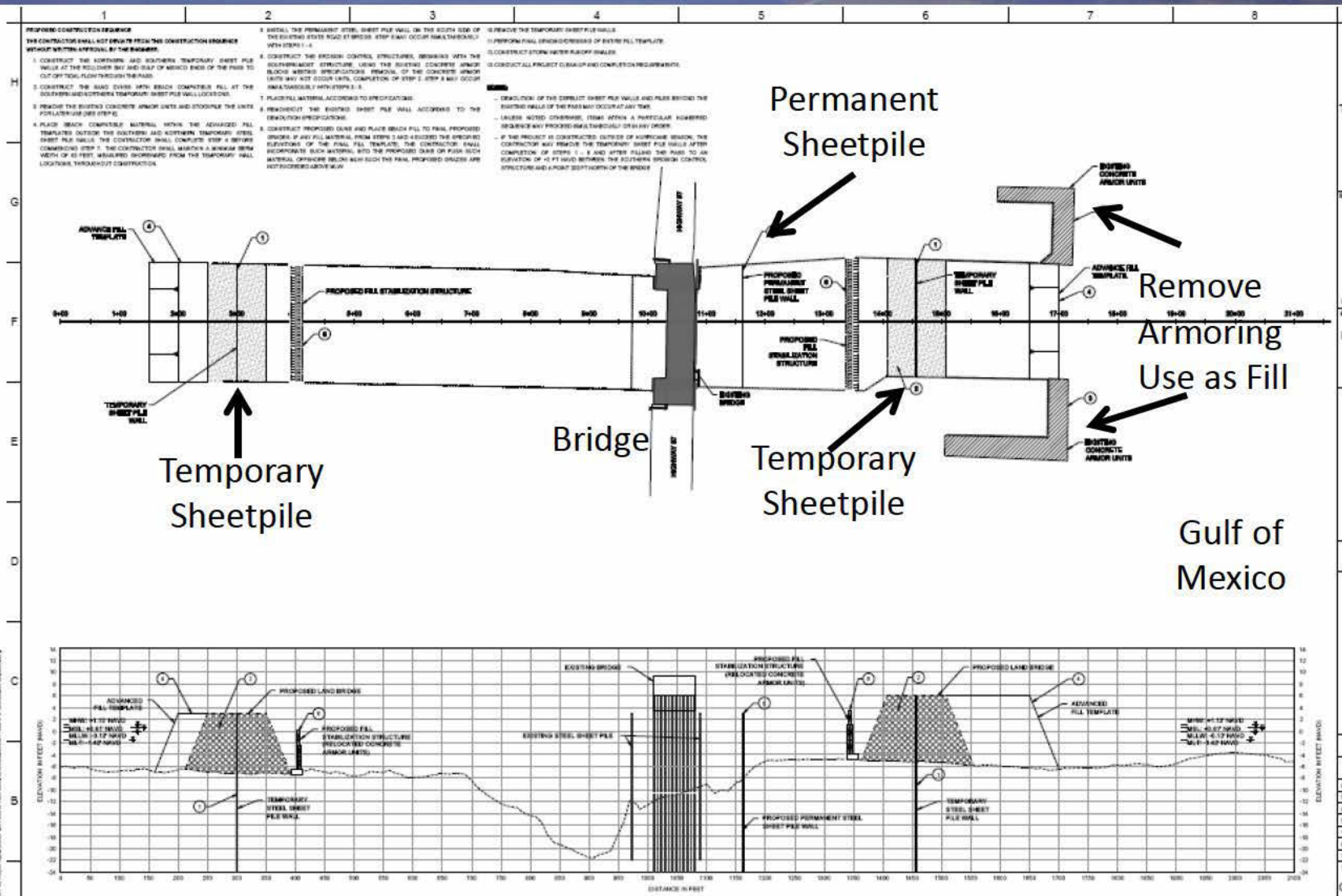
DRAFT

ROLLOVER PASS CL
PROJECT
GALVESTON COUNTY,

PROJECT NO	0201 1-008
DATE	AUG 8, 2011
DESIGNED	DESGN BY
DRAWN	NP
CHECKED	CHECK BY
REVIEWED	REV BY
SCALE	AS SHOWN

APPROVED BORRO
LOCATIONS

C-3


Permanent Sheetpile
Remove Armoring Use as Fill
Temporary Sheetpile
Bridge
Temporary Sheetpile
Gulf of Mexico
CONSTRUCTION SEQUENCE - STEPS 1 THOUGH 6
TAYLOR ENGINEERING INC.
DRAFT
ROLLOVER PASS CLOSURE PROJECT
GALVESTON COUNTY, TEXAS
CONSTRUCTION SEQUENCE STEPS 1 THROUGH 6
C-4

Project Costs and Benefits

Project Costs:

Design, Permitting, Construction: $6 million

Lost Recreational Benefits Mitigation: $3 Million

Sustainability Benefits

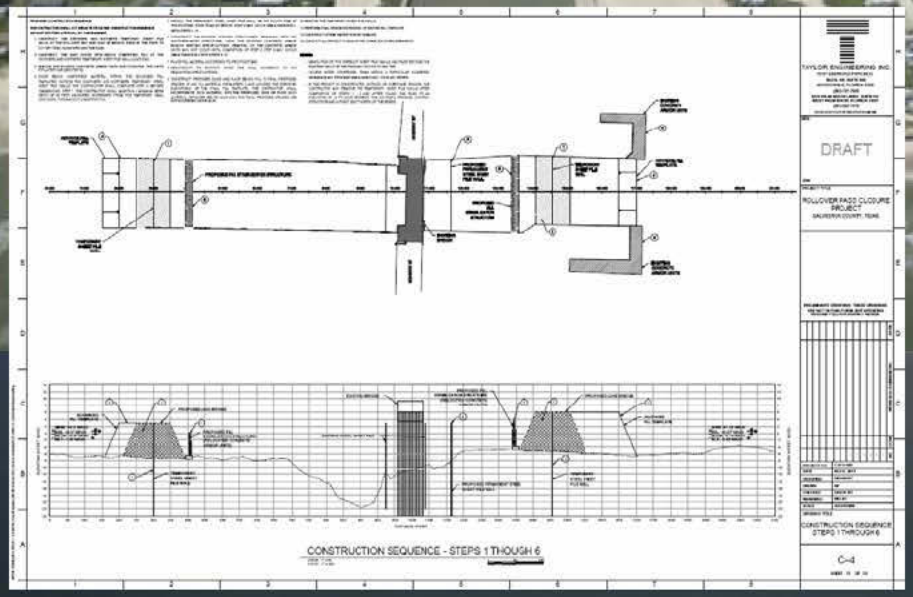
- ✓ Reduces Rollover Bay-GIWW dredging costs by 50%
- ✓ Reduces dredging-related air pollution by 50%
- ✓ Uses GIWW dredged material for fill
- ✓ Uses old Pass materials for closure construction
- ✓ Eliminates pass-related beach erosion
- ✓ Creates additional turtle nesting beach (Kemp's ridley turtle)
- ✓ Returns the salinity of Rollover Bay / East Bay to pre-pass estuarine conditions (oysters, juvenile fish nursery)

Sustained Benefits:

Reduced Environmental Impacts
Reduced Environmental Risks
Reduced Physical Changes from Dredging

Community Costs:

Regional Recreation Benefit and Related Income Eliminated
Mitigation will provide pedestrian fishing access



THANK YOU!

Questions?