## APPENDIX E SUMMARY OF IMPACTS TABLE

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5A	Alternative 5B	Alternative 5C	Alternative 5D
Salt Marsh	Both negative	Same as Alt. 1	No indirect or	Same as Alt. 3	No permanent	Same as Alt.	No permanent	Same as Alt.
	and positive		direct impacts		indirect or	5A	indirect or	5C
	direct impacts		are anticipated.		direct impacts		direct impacts	
	are anticipated		Cumulative		are		are	
	as some areas		impacts may be		anticipated.		anticipated.	
	of salt marsh		incurred as a		No cumulative		No cumulative	
	are anticipated		result of		impacts are		impacts are	
	to develop		reduced		anticipated as		anticipated as	
	while other		inorganic		the volume of		the volume of	
	areas may		sediment		material		material	
	erode. No		transport		removed from		removed from	
	cumulative		through the		the Nixon		the Nixon	
	impacts are		inlet into the		Channel		Channel	
	anticipated.		salt marsh		navigation		navigation	
			resources.		feature has not		feature has not	
					impacted salt		impacted salt	
					marshes in the		marshes in the	
					past. 0.7 acres		past. 0.4 acres	
					of temporary		of temporary	
					direct impacts		direct impacts	
					are expected		are expected	
					as a result of		as a result of	
					construction of		construction of	
					a portion of		a portion of	
					the terminal		the terminal	
					groin.		groin.	
SAV	No direct,	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1
	indirect, or							
	cumulative							
	impacts are							
	expected due							
	to the remote							
	location of the							
	SAV							

Figure Eight Island Shoreline Management Project EIS

	occurrences to the areas experiencing erosion along Rich Inlet and Nixon Channel.							
Shellfish	No direct, indirect, or cumulative impacts are expected due to the remote location of the shellfish occurrences to the areas experiencing erosion along Rich Inlet and Nixon Channel.	Same as Alt. 1						
Upland Hammock	No direct or indirect impacts expected due to the remote location of the upland hammock habitat to the areas experiencing erosion along Rich Inlet and Nixon	Same as Alt. 1						

Figure Eight Island Shoreline Management Project EIS

	Channel.							
	Cumulative							
	impacts							
	include							
	potential salt							
	water intrusion							
	attributed to							
	sea level rise.							
Inlet Dunes and	Negative Negative	Negative	The	Alternative 4	Delft3D	Same as Alt.	Delft3D	Same as Alt.
Dry Beaches	direct impacts	indirect and	construction of	encompasses	modeling	5A	modeling	5C
Dry Beaches	are expected to	cumulative	the dike along	the same fill	results suggest	371	results suggest	
	include the	impacts	with the	footprint along	that 0-5 acres		that 0-5 acres	
	burial of	include the	placement of	the shoreline	of direct		of direct	
	infaunal	reduction of	material along	of Nixon	impact to the		impact to the	
	species and	approximately	the Nixon	Channel as	Inlet Dunes		Inlet Dunes	
	disruption of	7 acres of	Channel	Alternative 3.	and Dry		and Dry	
	nesting and	habitat for	shoreline are	Approximately	Beaches on		Beaches on	
	foraging	shorebirds	expected to	57,000 cubic	Figure Eight		Figure Eight	
	habitat as a	and	lead to direct	yards of	Island with the		Island with the	
	result of the	recreational	impacts of 35-	material will	implementatio		implementatio	
	sporadic beach	opportunities.	40 acres of	cover	n of		n of	
	nourishment	Positive	inlet dunes and	approximately	Alternative		Alternative	
	activities. The	indirect and	dry beach	0.6 acres of	5A. Of this,		5C. Of this,	
	burial of	cumulative	habitat. This	inlet dry beach	0.7 acres		1.1 acres	
	infaunal	impacts	will lead to the	under the 2006	would be		would be	
	organisms	would be	burial of	shoreline	directly		directly	
	could	anticipated on	infaunal	conditions, but	impacted as a		impacted as a	
	negatively	Hutaff Island	species and	will create	result of the		result of the	
	indirectly	as the inlet	disruption of	approximately	construction of		construction of	
	affect the birds	beaches and	nesting and	1.2 acres of	the landward		the landward	
	that forage on	dunes are	foraging	that habitat.	portion of the		portion of the	
	these	expected to	habitat as a	This results in	terminal groin.		terminal groin.	
	organisms.	increase in	result of the	a net gain of	In addition,		In addition,	
	Negative			0.6 acres.	roughly 1.2		roughly 1.2	
	_	acreage. No cumulative	sporadic beach nourishment		acres of beach		acres of beach	
	impacts also			The expansion				
	include the	impacts are	activities. The	of this	fill would be		fill would be	

Figure Eight Island Shoreline Management Project EIS

reduction in	anticipated as	burial of	shoreline	placed along	placed along
habitat for	this	infaunal	footprint will	the Nixon	the Nixon
shorebirds and	environment	organisms	increase the	Channel	Channel
recreational	is naturally	could	dry beach and	shoreline.	shoreline.
opportunities.	dynamic.	negatively	provide	Several	Several
Positive	•	indirectly	additional	biological	biological
indirect		affect the birds	resting, and	resources,	resources,
impacts would		that forage on	potential	including	including
be anticipated		these	nesting, habitat	shorebirds,	shorebirds,
on Hutaff		organisms.	for shorebirds,	which utilize	which utilize
Island as the		These impacts	including the	the inlet	the inlet
inlet beaches		would be	piping plover.	beaches and	beaches and
and dunes are		incurred along	Indirect	dunes for	dunes for
expected to		the inlet	impacts	resting will be	resting will be
increase in		beaches of	suggest that	negatively	negatively
acreage. No		Figure Eight	the sand spit	impacted	impacted
cumulative		Island and	projecting off	during and	during and
impacts are		Hutaff Island	the north end	immediately	immediately
anticipated as		(in response to	of Figure Eight	following the	following the
this		the constructed	Island into	placement of	placement of
environment is		dike). Positive	Rich Inlet	sand upon the	sand upon the
naturally		indirect	initially	beach. Indirect	beach. Indirect
dynamic.		impacts are	elongated but	impacts	impacts
-		anticipated to	stabilized by	suggest that	suggest that
		the birds and	the end of	the inlet dunes	the inlet dunes
		sea turtles	Year 2 with	and beach	and beach
		which utilize	some slight	habitats may	habitats may
		this habitat for	erosion	be reduced on	be reduced on
		nesting and	occurring	the Figure	the Figure
		foraging as the	between Year	Eight Island	Eight Island
		habitat	4 and 5 of the	side of Rich	side of Rich
		increases. Due	simulation.	Inlet, the	Inlet, the
		to the	The initial	model results	model results
		relocation of	elongation of	indicates the	indicates the
		the inlet	the sand spit	south end of	south end of
		channel, much	appeared to be	Hutaff Island	Hutaff Island

Figure Eight Island Shoreline Management Project EIS

	of the ebb tide	due to sand	will accrete in		will accrete in	
	delta that	transported to	response to		response to	
	currently	the north from	Alternative 5A		Alternative 5A	
	provides	the oceanfront	between year 0		between year 0	
	protection to	beach fill.	and year 5		and year 5.	
	Hutaff Island's	Under the			and year 3.	
	Inlet Dunes and	2006 shoreline	leading to a net indirect			
	Dry Beaches is	conditions,	impact of 0-5			
	expected to	these	acres.			
	diminish as the	morphological				
	ebb tide delta is	changes to the				
	expected to	inlet dunes and				
	reorient	dry beaches				
	southward. As	indicated an				
	shown by	net increase of				
	Delft3D model	approximately				
	results,	4.1 acres of				
	portions of the	habitat over				
	inlet beaches	the 5-year				
	along Hutaff	period. This				
	Island are	net gain				
	expected to	includes the				
	erode within 5	approximate				
	years.	net loss of				
		approximately				
		0.8 acres of				
		inlet dry beach				
		that was				
		initially				
		created along				
		the Nixon				
		Channel				
		shoreline.				
Intertidal Flats No direct or No direct						
	Direct impacts	Because the	The activities	Because the	Same as Alt.	Same as Alt.
and Shoals cumulative impacts are	Direct impacts include the		The activities associated	Because the permitted	Same as Alt. 5A	Same as Alt. 5B

Figure Eight Island Shoreline Management Project EIS

anticipated.	however, an	25 acres of	associated	Alternative 5A	associated	
Minimal	increase of	intertidal flats	with	would directly	with	
indirect	material	and shoals	Alternative 4	impact	Alternative 5B	
impacts may	imported into	within the	does not	approximately	does not	
occur.	the inlet	permit area.	include	25-30 acres of	include	
occur.	complex may	Indirect	intertidal	intertidal flats	intertidal	
	result in an	impacts include	areas, this	and shoals	areas, this	
	increase of	a reduction of	alternative is	through direct	alternative is	
	intertidal flats	1.39M cubic	not expected to	excavation.	not expected	
	and shoals	yards of	have direct	There will	to have direct	
	thereby	material	impacts on	likely be an	impacts on	
	resulting in a	available for	intertidal flats	overall net	intertidal flats	
	positive	the	and shoals.	reduction of	and shoals.	
	indirect	development of	Delft3D model	approximately	Delft3D	
	impact. No	intertidal flats	estimated that	0-5 acres of	modeling	
	cumulative	and shoals. No	an additional	intertidal flats	suggests that	
	impacts are	cumulative	180,200 cubic	and shoals	the overall net	
	anticipated.	impacts are	yards of	within the	change in	
	anticipated.	anticipated.	material would	project area	volume	
		amicipateu.	be transported	due to the net	compared to	
			into the inlet	due to the net deficit of	the baseline	
			as a result of	approximately	conditions of	
			Alternative 4.	224,000 cubic	Alternative 2	
			This influx of	yards of	was a decrease	
			material was	material within	of 449,700	
			shown to occur	the inlet	cubic yards of	
			mostly by	system. No	material in the	
			Year 2, and	cumulative	system. Out	
			then		of this amount,	
			diminished for	impacts are	289,500 cubic	
				anticipated.	,	
			the remaining		yards was	
			three years.		artificially	
			This sediment		removed by	
			could result in		dredging from	
			the formation		the previously	
			of		permitted area	

Figure Eight Island Shoreline Management Project EIS

				approximately		in Nixon		
				0-5 acres of		Channel. This		
				additional		could lead to		
				intertidal flats		approximately		
				and shoals,		0-5 acres of		
				especially in		indirect		
				the middle		impacts. No		
				shoal area of		cumulative		
				the inlet, or the		impacts are		
				flood tide		anticipated.		
				delta.		•		
Oceanfront	Beach	No direct	Positive direct	Positive direct	Same as	Although the	Same as	Same as
Dune	scraping will	impacts are	and indirect	and indirect	Alternative 4.	construction of	Alternative 4.	Alternative 4.
Communities	afford some	anticipated.	impacts are	impacts are		dunes is not a		
	positive direct	Indirect and	anticipated due	anticipated due		part of the plan		
	impacts to the	cumulative	to the	to the		for Alternative		
	dunes along	impacts	construction of	construction of		5B, the beach		
	Figure Eight	would be	dunes leading	4.6 acres of		fill is intended		
	Island.	expected	to increase	dunes leading		to provide		
	However,	along Figure	habitat along	to increase		direct and		
	continued	Eight Island	the northern	habitat along		indirect		
	erosion is	as the chronic	portion of	the northern		benefits to the		
	expected to	erosion would	Figure Eight	portion of		coastal dune		
	indirectly and	threaten the	Island. The	Figure Eight		communities		
	cumulatively	existing dunes	protection of	Island. No		as it allows for		
	negatively	along the	the ocean	cumulative		growth and		
	impact dune	northern	shoreline along	impacts are		development		
	vegetation,	portion of the	the southern	expected.		of dune		
	resulting in a	island. No	end of Hutaff			vegetation		
	degraded	impacts are	Island currently			thereby		
	habitat used by	anticipated	provided by the			providing		
	several species	along Hutaff	ebb tide delta			habitat for		
	of roosting,	Island as the	will diminish			roosting,		
	foraging and	dunes are	and leave the			foraging and		
	nesting	anticipated to	dunes in this			nesting		
	shorebirds and	naturally	location more			shorebirds.		

Figure Eight Island Shoreline Management Project EIS

	plant species,	migrate	susceptible to					
	such as	westward	storm-induced					
	seabeach	through	damage					
	amaranth. The	transgression.	increasing the					
	dune		potential for					
	communities		overwash.					
	located on		Therefore,					
	Hutaff Island		Alternative 3					
	are anticipated		may lead to					
	to naturally		cumulative					
	migrate		impacts to the					
	westward		oceanfront					
	through		dunes along					
	transgression,		Hutaff Island.					
	therefore no							
	impacts are							
	anticipated on							
	Hutaff Island.							
Oceanfront Dry	The dry beach	Indirect	Direct impacts	Direct impacts	Direct impacts	Direct impacts	Same as Alt.	Same as Alt.
Oceanfront Dry Beach	The dry beach community	Indirect impacts	Direct impacts will include 50-	Direct impacts will include	Direct impacts will include	Direct impacts will include	Same as Alt. 5A.	Same as Alt. 5B.
_	•							
Beach	community along Figure Eight Island	impacts include a reduction of	will include 50- 55 acres of dry beach habitat.	will include 45-50 acres of dry beach	will include 45-50 acres of dry beach	will include 15-20 acres of dry beach		
Beach	community along Figure Eight Island will be directly	impacts include a reduction of coastal dry	will include 50- 55 acres of dry beach habitat. Indirect	will include 45-50 acres of dry beach habitat.	will include 45-50 acres of dry beach habitat.	will include 15-20 acres of dry beach habitat.		
Beach	community along Figure Eight Island will be directly impacted	impacts include a reduction of coastal dry beach habitat	will include 50- 55 acres of dry beach habitat. Indirect impacts of 0-5	will include 45-50 acres of dry beach	will include 45-50 acres of dry beach	will include 15-20 acres of dry beach		
Beach	community along Figure Eight Island will be directly	impacts include a reduction of coastal dry	will include 50- 55 acres of dry beach habitat. Indirect	will include 45-50 acres of dry beach habitat.	will include 45-50 acres of dry beach habitat.	will include 15-20 acres of dry beach habitat.		
Beach	community along Figure Eight Island will be directly impacted during and following all	impacts include a reduction of coastal dry beach habitat	will include 50- 55 acres of dry beach habitat. Indirect impacts of 0-5	will include 45-50 acres of dry beach habitat. Indirect	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated	will include 15-20 acres of dry beach habitat. Indirect		
Beach	community along Figure Eight Island will be directly impacted during and following all beach	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of	will include 50- 55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment,	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate	will include 50- 55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting	will include 50- 55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping events, and the	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting habitat,	will include 50- 55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for birds, turtles,	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles,	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds,	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds,		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping events, and the utilization of	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting habitat, shorebird and	will include 50-55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping events, and the utilization of sandbags. No	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting habitat, shorebird and water bird	will include 50-55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping events, and the utilization of sandbags. No direct impacts	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting habitat, shorebird and water bird habitat, and	will include 50-55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping events, and the utilization of sandbags. No direct impacts are anticipated	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting habitat, shorebird and water bird habitat, and recreational	will include 50-55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight Island and	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight Island and	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight		
Beach	community along Figure Eight Island will be directly impacted during and following all beach nourishment, beach scraping events, and the utilization of sandbags. No direct impacts	impacts include a reduction of coastal dry beach habitat by 0-5 acres resulting in a loss of adequate turtle nesting habitat, shorebird and water bird habitat, and	will include 50-55 acres of dry beach habitat. Indirect impacts of 0-5 acres will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along Figure Eight	will include 45-50 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along	will include 15-20 acres of dry beach habitat. Indirect impacts will be anticipated due to the increase of dry beach habitat for birds, turtles, and recreating humans along		

Figure Eight Island Shoreline Management Project EIS

	Indirect	island.	cumulative	No cumulative	Hutaff Island.	Hutaff Island.		
	impacts on		impacts are	impacts are	No cumulative	No cumulative		
	Figure Eight		anticipated.	anticipated.	impacts are	impacts are		
	Island will		anticipates.	unticipated.	anticipated.	anticipated.		
	include habitat				uniterpated.	uniterpated.		
	loss and lost							
	recreational							
	opportunities							
	due to erosion.							
	The dry beach							
	community on							
	Hutaff Island							
	will be							
	expected to							
	experience							
	positive							
	indirect and							
	cumulative							
	impacts as the							
	habitat							
	accretes.							
Wet Beach	The marine	No impacts	10-15 acres of	Same as	10-15 acres of	0-5 acres of	Same as Alt.	Same as Alt.
Communities	intertidal	are	the marine	Alternative 3.	the marine	the marine	5A.	5B.
	community	anticipated.	intertidal		intertidal	intertidal		
	along Figure		community		community	community		
	Eight Island		along Figure		along Figure	along Figure		
	will be directly		Eight Island		Eight Island	Eight Island		
	impacted		will be directly		will be directly	will be directly		
	during and		impacted		impacted	impacted		
	following all		during and		during and	during and		
	beach		following		following	following		
	nourishment		beach		beach	beach		
	and beach		nourishment		nourishment	nourishment		
	scraping		events.		events. The	events. The		
	events.		Infaunal		construction of	construction of		
	Sandbags may		communities		the terminal	the terminal		

Figure Eight Island Shoreline Management Project EIS

	also reduce wet beach habitat. Infaunal communities will be directly impacted due to burial; however, due to the resilient nature of these organisms, the impacts will be temporary. Indirect impacts to less than 5 acres will affect shorebird, crustacean and fish foraging. The marine intertidal community on Hutaff is not anticipated to be impacted.		will be directly impacted due to burial, however due to the resilient nature of these organisms, the impacts will be temporary. Indirect impacts to 5-10 acres will affect shorebird, crustacean and fish foraging. No cumulative impacts are expected		groin will impact approximately 0.3 acres of wet beach. Infaunal communities will be directly impacted due to burial, however due to the resilient nature of these organisms, the impacts will be temporary. Indirect impacts of 5-10 acres will affect shorebird, crustacean and fish foraging.	groin will impact approximately 0.3 acres of wet beach. Infaunal communities will be directly impacted due to burial, however due to the resilient nature of these organisms, the impacts will be temporary. Indirect impacts of approximately 0-5 acres will affect shorebird, crustacean and fish foraging.		
Softbottom Communities	Direct impacts include increased levels of turbidity, direct removal, and burial of infaunal biota during	No impacts are anticipated.	Direct impacts include the direct removal and burial of infaunal biota during dredging operations and following the	Direct impacts of 25-30 acres of softbottom habitat include the direct removal and burial of infaunal biota during	Direct impacts include the direct removal and burial of infaunal biota during dredging operations and following the	Direct impacts include the direct removal and burial of infaunal biota during dredging operations and following the	Same as Alt. 5A.	Same as Alt. 5B.

Figure Eight Island Shoreline Management Project EIS

	dredging		disposal of the	dredging	disposal of the	disposal of the		
	operations and		material onto	operations and	material onto	material onto		
	following the		Figure Eight	following the	Figure Eight	Figure Eight		
	disposal of the		Island and	disposal of the	Island. A total	Island. A total		
	material		construction of	material onto	of 80-90 acres	of 25-30 acres		
	during		the closure	Figure Eight	of softbottom	of softbottom		
	maintenance		dike. A total of	Island.	from Nixon	will be directly		
	events within		100-110 acres	Because the	Channel and	impacted due		
	Banks		of softbottom	offshore	the connector	to the dredging		
	Channel,		will be directly	borrow area	channel will	activities.		
	Nixon		impacted due	has not been	be directly	Negative		
	Channel, and		to the dredging	delineated, it is	impacted due	indirect		
	the AIWW.		and	not possible to	to the dredging	impacts		
	Negative		construction of	determine the	activities.	include the		
	indirect		the closure	acreage of	Negative	temporary loss		
	impacts		dike. Negative	disturbed	indirect	of prey for		
	include the		indirect	softbottom	impacts	foraging fish		
	temporary loss		impacts include	habitat.	include the	and		
	of prey for		the temporary	Negative	temporary loss	invertebrates		
	foraging fish		loss of prey for	indirect	of prey for	from the		
	and		foraging fish	impacts	foraging fish	dredged		
	invertebrates		and	include the	and	softbottom		
	from the		invertebrates	temporary loss	invertebrates	habitat. No		
	dredged		from the	of prey for	from the	cumulative		
	softbottom		dredged	foraging fish	dredged	impacts are		
	habitat. No		softbottom	and	softbottom	anticipated.		
	cumulative		habitat. No	invertebrates	habitat. No	_		
	impacts are		cumulative	from the	cumulative			
	anticipated.		impacts are	dredged	impacts are			
	•		anticipated.	softbottom	anticipated.			
			-	habitat. No	-			
				cumulative				
				impacts are				
				anticipated.				
Turbidity and	Direct impacts	Aside from a	Same as	Same as	Same as	Same as	Same as	Same as
TSS	include	natural	Alternative. 1	Alternative. 1	Alternative 1	Alternative 1	Alternative 1	Alternative 1

Figure Eight Island Shoreline Management Project EIS

	temporary increases in suspended sediment and turbidity in the immediate area of dredge and fill operations within the nearshore environment. No indirect or direct impacts are anticipated.	increase of turbidity in response to periodic storms, no impacts are anticipated.						
Hydrodynamics and Salinity	No direct, indirect, or cumulative impacts are anticipated.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Public Safety	Positive direct and indirect impacts include storm protection to threatened homes and infrastructure in areas receiving beach fill. Negative direct, indirect, and cumulative	The activity associated with demolition of abandoned homes could expose workers to risk of injury. There is also a strong possibility that some debris could fall into the	Same as Alternative 1.	Same as Alternative 1.	Positive direct and indirect impacts include storm protection to threatened homes and infrastructure in areas receiving beach fill. Negative direct, indirect, and cumulative	Same as Alternative 5A	Same as Alt. 5A.	Same as Alternative 5A.

Figure Eight Island Shoreline Management Project EIS

	impacts	nearshore that			impacts			
	include the	could pose			include the			
	potential	health threats			potential			
	release of	to swimmers			release of			
	sewage and	or boaters. As			sewage and			
	other	the erosion			other			
	hazardous	undermines			hazardous			
	materials onto	existing roads			materials onto			
	the beach and	and sanitary			the beach and			
	into the coastal	systems,			into the coastal			
	waters as well	exposes			waters as well			
	as closed areas	electrical			as closed areas			
	of beach	lines, and			of beach			
	impeding	ruptures or			impeding			
	recreation if	requires the			recreation if			
	storm damage	relocation and			storm damage			
	occurs in areas	rerouting of			occurs in areas			
	not receiving	the water			not receiving			
	protective	supply			protective			
	beach fill.	system, the			beach fill. The			
		public would			terminal groin			
		be exposed to			will be			
		increased risk			anticipated to			
		of injury			impose			
		and/or			impacts to			
		infection. This			public safety			
		would result			as it will			
		in negative			primarily be			
		direct,			buried along			
		indirect, and			the dry beach			
		cumulative			and will			
		impacts.			remain 3.5 ft			
					NAVD above			
					the water's			
					surface.			
Aesthetic	Direct impacts	Abandoned	Temporary	Temporary	Temporary	Same as Alt.	Same as Alt.	Same as Alt.

Figure Eight Island Shoreline Management Project EIS

Resources	could include	homes could	direct negative	direct negative	direct negative	5A	5A	5A
	the presence of	directly and	impacts to	impacts to	impacts to			
	construction	indirectly	aesthetic	aesthetic	aesthetic			
	equipment	impact	resources will	resources will	resources will			
	which would	aesthetic	occur due to	occur due to	occur due to			
	temporarily	resources.	the usage of	the usage of	the usage of			
	detract from	Continued	heavy	heavy	heavy			
	the aesthetics	erosion of the	machinery	machinery	machinery			
	of the	oceanfront	within Rich	within Nixon	within Nixon			
	waterways and	shoreline	Inlet and on the	Channel and	Channel and			
	beach of	along the	oceanfront	on the	on the			
	Figure Eight	northern	shoreline of	oceanfront	oceanfront			
	Island.	portion of	Figure Eight	shoreline of	shoreline of			
	Indirect and	Figure Eight	Island. The	Figure Eight	Figure Eight			
	cumulative	Island could	removal of the	Island. The	Island. The			
	impacts could	also result in a	sandbags along	removal of the	removal of the			
	include a	significant	the northern	sandbags	sandbags			
	significant loss	loss of land,	portion of	along the	along the			
	of land,	personal	Figure Eight	northern	northern			
	personal	property, and	Island will	portion of	portion of			
	property and	roads causing	improve the	Figure Eight	Figure Eight			
	roads, which	cumulative	aesthetic	Island will	Island will			
	would	impacts.	quality of the	improve the	improve the			
	negatively		island resulting	aesthetic	aesthetic			
	affect the		in positive	quality of the	quality of the			
	aesthetic		direct impacts.	island	island			
	quality of		No indirect or	resulting in	resulting in			
	Figure Eight		cumulative	positive direct	positive direct			
	Island.		impacts are	impacts. No	impacts. No			
			anticipated.	indirect or	indirect or			
				cumulative	cumulative			
				impacts are	impacts are			
				anticipated.	anticipated as			
				-	most of the			
					landward			
					portion of the			

Figure Eight Island Shoreline Management Project EIS

					groin will not be visible.			
Recreational	Negative	Negative	Negative direct	Same as	Negative	Same as Alt.	Same as Alt.	Same as Alt.
Resources	direct impacts will include the reduction of recreational opportunities during beach scraping and beach fill events. As the erosion continues along the effected stretch of shoreline on Figure Eight Island, recreational opportunities such and beachcombing, sunbathing, surf fishing, and walking along the beach may be negatively impacted.	impacts are anticipated if homes and associated infrastructure are abandoned and fall into the water. If homes are relocated, these recreational resources will not be impacted.	impacts will include the reduction of recreational opportunities during dredging and beach fill events.  Positive indirect and cumulative impacts are expected due to the increased size of the dry beach.	Alternative 3.	direct impacts will include the reduction of recreational opportunities during construction of the terminal groin as well as dredging and beach fill events. Positive indirect and cumulative impacts are expected due to the increased size of the dry beach and fishing and snorkeling opportunities afforded by the terminal groin.	5A	5A	5A.
Navigation	Dredging in Nixon Channel will benefit navigation due to a	Negative impacts include considerable shoaling	Navigation will be directly negatively impacted due to the presence	Dredging in Nixon Channel will benefit navigation due to a	Dredging in Nixon Channel and the connector channel will	Dredging in Nixon Channel will benefit navigation due to a	Same as Alt. 5A.	Same as Alt. 5B.

Figure Eight Island Shoreline Management Project EIS

	maintained	within the	of the dredge	maintained	benefit	maintained		
	depth. During	channel	and pipeline	depth. During	navigation due	depth. During		
	the dredging,	connecting	during the	the dredging,	to a	the dredging,		
	however,	Nixon	implementation	however,	maintained	however,		
	navigation will	Channel to the	of Alternative	navigation will	depth. During	navigation will		
	be temporarily	inlet gorge	3. No indirect	be temporarily	the dredging,	be temporarily		
	directly	and the mouth	or cumulative	directly	however,	directly		
	impacted due	of Green	impacts are	impacted due	navigation will	impacted due		
	to the presence	Channel.	anticipated.	to the presence	be temporarily	to the presence		
	of pipelines	Shoaling		of pipelines	directly	of pipelines		
	within the	could lead to		within the	impacted due	within the		
	waterway. At	the eventual		waterway. At	to the presence	waterway. At		
	no time will	navigable		no time will	of pipelines	no time will		
	complete	closure of the		complete	within the	complete		
	restriction of	channel		restriction of	waterway. At	restriction of		
	navigation	connecting		navigation	no time will	navigation		
	occur in Nixon	Nixon		occur in Nixon	complete	occur in Nixon		
	Channel	Channel with		Channel	restriction of	Channel		
	during dredge	the inlet		during dredge	navigation	during dredge		
	operations.	gorge, which		operations.	occur in Nixon	operations.		
		would render		Navigation	Channel	The terminal		
		the channel		will also be	during dredge	groin will be		
		impassible to		temporarily	operations.	clearly		
		most		restricted	The terminal	marked;		
		recreational		within the	groin will be	therefore it		
		craft that		areas between	clearly	should not		
		normally use		the offshore	marked;	pose a threat to		
		Rich Inlet and		borrow area	therefore it	boats.		
		the connecting		and the	should not			
		channels.		disposal areas	pose a threat to			
				along the	boats.			
				oceanfront				
				shoreline and				
				Nixon Channel				
7.0	Ad	41 2		shoreline.	9 41 9	9 41 9	G 41. 3	g 41. 3
Infrastructure	Alternative 1	Alternative 2	Alternative 3 is	Same as Alt. 3	Same as Alt. 3	Same as Alt. 3	Same as Alt. 3	Same as Alt. 3

Figure Eight Island Shoreline Management Project EIS

	is expected to have a positive	would likely have a	expected to and positively					
	direct and	negative	impact the					
	indirect impact	direct, indirect	infrastructure					
	on existing	and	on Figure Eight					
	infrastructure	cumulative	Island due to					
	located on	impact on	the long-term					
	Figure Eight	existing	protection from					
	Island due to	infrastructure	erosion.					
	the short-term	located on						
	protection	Figure Eight						
	provided by	Island due to						
	beach	the						
	nourishment	abandonment						
	and beach	or retreat of						
	scraping	homes and						
	projects. Cumulative	infrastructure.						
	impacts are							
	anticipated to							
	be negative as							
	the threatened							
	homes and							
	infrastructure							
	will not be							
	protected in							
	the long term.							
Solid Waste	No direct	If threatened	Both short and	Same as Alt. 3				
	impacts will	structures are	long-term					
	be anticipated	not relocated,	benefits are					
	due to the	they may	expected from					
	short-term	ultimately	the reduction of					
	protection	need to be	solid waste.					
	provided by	demolished	This alternative					
	beach	with the	will provide					
	nourishment	debris	protection					

Figure Eight Island Shoreline Management Project EIS

	and beach scraping. The debris generated from the demolition of homes and infrastructure could indirectly and cumulatively impact the amount of solid waste deposited in local sanitary landfills.	deposited in local sanitary landfills causing direct impacts. The cumulative effect of demolition and removal of homes and infrastructure debris could reduce the amount of space available at the local landfill over the next ten (10) years.	along portions of Figure Eight Island thereby decreasing the risk of damage to residential buildings and infrastructure. This would alleviate the potential of increased amount of solid waste through demolition.					
Noise Pollution	Dredge and fill operations would temporarily raise noise level in the area; however, no indirect or cumulative impacts pertaining to noise	The demolition or relocation of homes on Figure Eight Island would temporarily raise the noise level in the areas due to the use of heavy machinery,	The relocation of Rich Inlet, dredging of the connector channels, construction of the closure dike, and the placement of beach compatible material on the oceanfront and backbarrier shoreline	Dredging within Nixon Channel and the offshore borrow areas along with the utilization of material from within the upland dredge disposal sites would temporarily raise the noise level in the	The dredging of the Nixon Channel and the connector channel, the placement of beach compatible material on the oceanfront and estuarine shoreline, and construction of the terminal groin would	The dredging of the Nixon Channel, the transport of material from the upland dredge disposal sites, the placement of beach compatible material on the oceanfront and estuarine shoreline, and	Same as Alt. 5A.	Same as Alt. 5B

Figure Eight Island Shoreline Management Project EIS

	pollution are anticipated.	however no indirect or cumulative impacts pertaining to noise pollution are anticipated.	would temporarily raise the noise level in the areas due to the use of heavy machinery. No indirect or cumulative impacts pertaining to noise pollution are anticipated.	areas. No indirect or cumulative impacts pertaining to noise pollution are anticipated.	temporarily raise the noise level in the areas. No indirect or cumulative impacts pertaining to noise pollution are anticipated.	the construction of the terminal groin would temporarily raise the noise level in the areas. No indirect or cumulative impacts pertaining to noise pollution are anticipated.		
Economics	Over the 30- year analysis period, the total cost associated with Alternative 1 would be about \$92.5 million.	Over the 30- year analysis period, the total cost associated with Alternative 2 would be about \$63.7 million.	Over the thirty year planning period, the total implementation cost for Alternative 3 would be about \$63.3 million in current dollars.	Over the thirty year planning period, the total implementatio n cost for Alternative 4 would be about \$69.0 million in current dollars.	Over the 30- year planning period, the total cost for Alternative 5A in current dollars would be about \$43.68 million.	Over the 30- year planning period, the total cost for Alternative 5B in current dollars would be approximately \$24.76 million.	Over the 30- year planning period, the total implementatio n cost for Alternative 5C in current dollars would be approximately \$43.80 million.	Over the 30- year planning period, the total cost for Alternative 5D in current dollars would be approximately \$26.18 million under 2006 conditions.