MEMORANDUM

Date: 06 August 2018

To: D. Wallace, W. Moore – SAISSA

From: Albert E. Browder, Ph.D., P.E.
Principal Engineer

Cc: E. Olsen – OAI

Re: Preliminary Opinion of Probable Cost to Construct the
Third Maintenance Renourishment of the
South Amelia Island Shore Stabilization Project

In conjunction with the recent submittal of a Local Government Funding Request (LGFR) to the Florida Department of Environmental Protection for FY 19-20, the following additional information is provided regarding an opinion of the probable cost to construct the next major renourishment of the South Amelia Island Shore Stabilization Project. The LGFR includes a $20M line item for the construction of the third renourishment. Additional line items in the LGFR for construction period engineering services and post-construction monitoring tasks bring the entire LGFR total amount to $20.85M.

The opinion of probable cost provided herein was developed from the following primary factors and considerations:

- the project is assumed to require 2.0 million cubic yards for renourishment, consistent with prior renourishment projects and the current condition of the beach;
- prices are based principally upon comparable projects involving cutterhead-pipeline dredges on the Atlantic coast of the southeast United States that have been recently publicly advertised and bid on the open market;
- the project will not be constructed until the late spring or summer of 2020, at the earliest.

Note that the objectives in providing this opinion do NOT include forecasting what the lowest possible price might be in a bid situation. Rather, the objective in this process is to develop an opinion of the probable cost to construct the project and to provide a reasonable cost figure to allow for the planning of loan amounts, cost-sharing contributions, homeowner assessments, and contingency plans for the successful completion of the project, which will occur at least two years from now.

Table 1 presents a hypothetical schedule of bid items for the upcoming renourishment of the project. Based upon the recent bidding results, the opinion of probable cost to construct the third renourishment is $20M[1]. Clearly the cost of mobilization/demobilization (mob/demob) and the unit price of the sand, which is then multiplied by 2 million, dictate the overall cost.

PREVIOUS PROJECT - The current opinion of probable cost is 33% higher than the opinion of cost provided by OAI for the 2011 renourishment project, which was $15M for two million cubic yards of sand. Likewise, the current opinion is substantially higher than -- more than double -- the *accepted* bid cost from 2011, which was $9.53M. **Table 2** details the bid results from the 2011 project, including the accepted low bid and the second lowest bidder from that process. The second bidder in the 2011 project provided a bid for $13.53M. Note that second bid was $4M higher than the very aggressive accepted bid, which was far below market levels at that time due to a new entrant into the market at that time. The 2nd bid less than 10% below the opinion of cost for that 2011 project.

CURRENT MARKET CONDITIONS – At present, the dredging market is characterized by extremely high demand, and very limited supply. It is thus very much a "seller's market" for the dredging industry. There are realistically only four dredging companies that operate in the southeast United States and own the proper cutterhead/pipeline dredge equipment that can efficiently complete the SAISSA project. The number of communities and projects desirous of such services and equipment continues to grow over time. This condition has been exceptionally acute since Hurricane Sandy impacted the eastern seaboard in 2012.

Table 1 Opinion of Probable Cost to Construct
the third renourishment of the South Amelia Island Shore Stabilization Project

OPINION FOR 3rd RENOURISHMENT PROJECT					
Item #	**Item**	**Quantity**	**Unit**	**Unit Price**	**Subtotal**
1	Mobilization/Demobilization	1	job	$ 3,500,000.00	$ 3,500,000.00
2	Beach Fill Sand - in place	2,000,000	cubic yards	$ 8.15	$ 16,300,000.00
3	Turbidity Monitoring	1	job	$ 60,000.00	$ 60,000.00
4	Beach Tilling/Decompaction	1	job	$ 40,000.00	$ 40,000.00
5	Environmental Protection/Monitoring	1	job	$ 100,000.00	$ 100,000.00
				TOTAL	**$ 20,000,000.00**
			ALL-IN UNIT COST per cubic yard		**$ 10.00**

[1] The unit price per cubic yard for sand was increased from the more general value of $8/cy to $8.15/cy simply to produce a rounded value of $20M. It should not be assumed that the values could or should be projected that closely.

Table 2 Lowest and Second Lowest Bid Results for the 2011 renourishment of the South Amelia Island Shore Stabilization Project

2011 Project	MARINEX CONSTRUCTION				
Item #	**Item**	**Quantity**	**Unit**	**Unit Price**	**Subtotal**
1	Mobilization/Demobilization	1	job	$ 1,360,000.00	$ 1,360,000.00
2	Beach Fill Sand - in place	2,000,000	cubic yards	$ 4.07	$ 8,140,000.00
3	Turbidity Monitoring*	0	job	$ -	$ -
4	Beach Tilling/Decompaction	1	job	$ 32,000.00	$ 32,000.00
5	Environmental* Protection/Monitoring	1	job	$ -	$ -
				TOTAL	**$ 9,532,000.00**
* included in other bid items					
				construction all-in cost per cubic yard:	$ 4.77

2011 Project	Great Lakes Dock and Dredge - NEXT HIGHEST BIDDER				
Item #	**Item**	**Quantity**	**Unit**	**Unit Price**	**Subtotal**
1	Mobilization/Demobilization	1	job	$ 2,270,000.00	$ 2,270,000.00
2	Beach Fill Sand - in place	2,000,000	cubic yards	$ 5.60	$ 11,200,000.00
3	Turbidity Monitoring	0	job	$ -	$ -
4	Beach Tilling/Decompaction	1	job	$ 55,000.00	$ 55,000.00
5	Environmental Protection/Monitoring	1	job	$ -	$ -
				TOTAL	**$ 13,525,000.00**
* included in other bid items					
				construction all-in cost per cubic yard:	$ 6.76

RECENT COMPARABLE PROJECTS – As stated above, a significant factor in establishing the current opinion of costs is a review of recent publicly advertised and bid comparable projects, built in the southeast U.S. by cutterhead/pipeline dredge. **Table 3** provides details regarding several recent comparable projects. Only the basic bid item details are provided, in order to create a fair and reasonably clear comparison amongst projects. In **Table 3**, a scaled 'all-in' cost per cubic yard is calculated from the bid prices to estimate what a 2-million cubic yard project would cost under the same contract terms (highlighted in yellow in **Table 3**). It is recognized that if these projects had been advertised for bid with larger pay volumes of 2Mcy, the quoted unit prices *might* have been lower than those bid.

Table 3 Comparison of bid prices from recent publicly advertised and bid dredging projects similar in scope to the proposed SAISSA project

EXAMPLE 1			
July 2018	Mob/demob ($)	$	2,969,000.00
Bald Head Island, NC	Unit Price for sand ($/cy)	$	7.98
lowest bidder	Project Bid Volume (cy)		1,000,000
Marinex			
	Scaled total cost per cubic yard for 2 million cy:*	*$*	*9.46*
	*suggested construction cost for 2 million cy:***	*$*	*18,929,000.00*
July 2018	Mob/demob ($)	$	2,920,000.00
Bald Head Island, NC	Unit Price for sand ($/cy)	$	9.20
second lowest bidder	Project Bid Volume (cy)		1,000,000
Weeks Marine			
	Scaled total cost per cubic yard for 2 million cy:	*$*	*10.66*
	*suggested construction cost for 2 million cy:**	*$*	*21,320,000.00*
EXAMPLE 2			
June 2018	Mob/demob ($)	$	2,759,000.00
Pawley's Island, SC	Unit Price for sand ($/cy)	$	11.13
lowest bidder	Project Bid Volume (cy)		1,100,000
Marinex			
	Scaled total cost per cubic yard for 2 million cy:*	*$*	*12.50*
	*suggested construction cost for 2 million cy:****	*$*	*25,009,909.09*
June 2018	Mob/demob ($)	$	3,250,000.00
Pawley's Island, SC	Unit Price for sand ($/cy)	$	12.70
lowest bidder	Project Bid Volume (cy)		1,100,000
Weeks Marine			
	Scaled total cost per cubic yard for 2 million cy:	*$*	*14.33*
	*suggested construction cost for 2 million cy:**	*$*	*28,659,090.91*
EXAMPLE 3			
April 2018	Mob/demob ($)	$	4,475,000.00
Wilmington Harbor Inner Ocean Bar	Unit Price for sand ($/cy)	$	8.25
lowest bidder	Project Bid Volume (cy)		830,000
Weeks Marine			
	Scaled total cost per cubic yard for 2 million cy:*	*$*	*10.49*
	*suggested construction cost for 2 million cy:****	*$*	*20,975,000.00*
April 2018	Mob/demob ($)	$	6,280,000.00
Wilmington Harbor Inner Ocean Bar	Unit Price for sand ($/cy)	$	10.55
second lowest bidder	Project Bid Volume (cy)		830,000
Great Lakes			
	Scaled total cost per cubic yard for 2 million cy:	*$*	*13.69*
	*suggested construction cost for 2 million cy:**	*$*	*27,380,000.00*
* scaled total cost = mob/demob + bid unit price x 2,000,000			
** plus ancillary bid items			

Also listed in Table 3 are the results from the second lowest bidder in each case. These are provided to 1) show the spread in costs that can arise between bidders, sometimes driven by differences in mob/demob prices, and 2) to note that **contractor availability is frequently a very important factor in bid prices**. In some instances, the second and third bidders may not truly be available to do the work in the time specified in the bid. In those cases, frequently a much higher bid price is quoted, on the off chance that if that bidder is selected (because other bidders don't materialize due to busy schedules), they may have to renegotiate other contracts to actually conduct the work.

MITIGATING FACTORS FOR COMPARABLES – For each of the recently bid projects listed in **Table 3**, there are differences in the scope and timing of those projects as compared to the proposed SAISSA project. Most or all of these differences would potentially work in SAISSA's favor to potentially produce a lower bid price. These differences include, but are not limited to:

1) Timing of Construction (winter vs. summer construction) – each of the three projects listed in **Table 3** is targeted (and possibly restricted) for winter construction due to permit restrictions. The SAISSA project has always been permitted for and constructed in the summer months, with appropriate sea turtle nest monitoring and relocation. This is the most important factor in the prices that SAISSA will ultimately see, and it is critical that the upcoming permitting process result in that continued mode of operation.
2) Project volume – as noted above, at 2.0 million cubic yards (pay volume, preliminarily) the SAISSA project is much larger in volume than those shown in **Table 3**. As such the project represents a very large, and hence potentially profitable project for one of the dredge contractors.
3) Time – the SAISSA project will not be advertised for another 12-18 months, at the earliest, and as such prices can certainly continue to rise. Again it will be critical to advertise the project well ahead of construction, allow for a reasonably generous construction window, and make the project as simple and straightforward as possible in order to attract the best bid possible when the time arrives for bid advertisement.

If you have any questions regarding this information, please do not hesitate to contact us at 904-387-6114. Thank you.