



COMMONWEALTH OF THE BAHAMAS MINISTRY OF PUBLIC WORKS & TRANSPORT



NASSAU HARBOUR PORT IMPROVEMENT PROJECT

AUGUST 2009

OVERALL VIEW OF NASSAU HARBOUR



AERIAL VIEW OF NASSAU HARBOUR



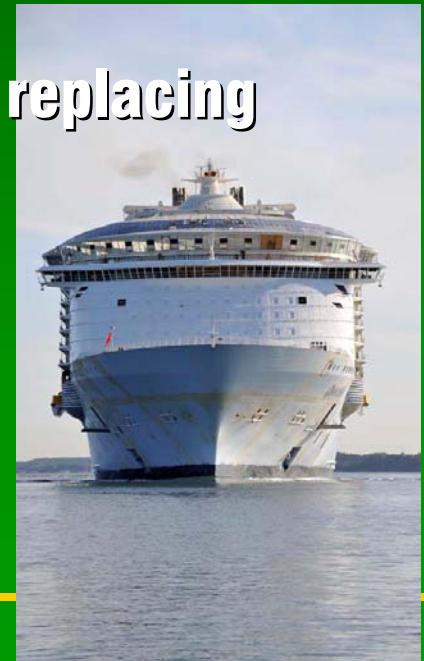
PROJECT HISTORY

- **1960's initial dredging of Nassau Harbour and formation of Kelly Island.**
- **1980's dredging completed to accommodate cruise lines vessels as presently calling to port.**
- **2007 cruise industry to improve efficiency by increase in vessel size, and reduction in overall fleet size.**
- **Evaluation of present manouvering, and berthing areas to accommodate future ship traffic.**
- **Ministry of Works and Transport tender consultancy services for specialized activity.**



PROJECT HISTORY Cont'd.

- **Royal Caribbean Cruise Lines' "Oasis of the Seas" will arrive 11 December 2009.**
- **Ship characteristics:**
 - Length: 1,180 ft; Beam: 140 ft; Draft: 35 ft.**
 - Passengers: 6,400 Crew: 3,000**
- **This is the first of a number of similar sized ships replacing smaller ships.**



PROJECT HISTORY Cont'd.



PROJECT COMPONENTS

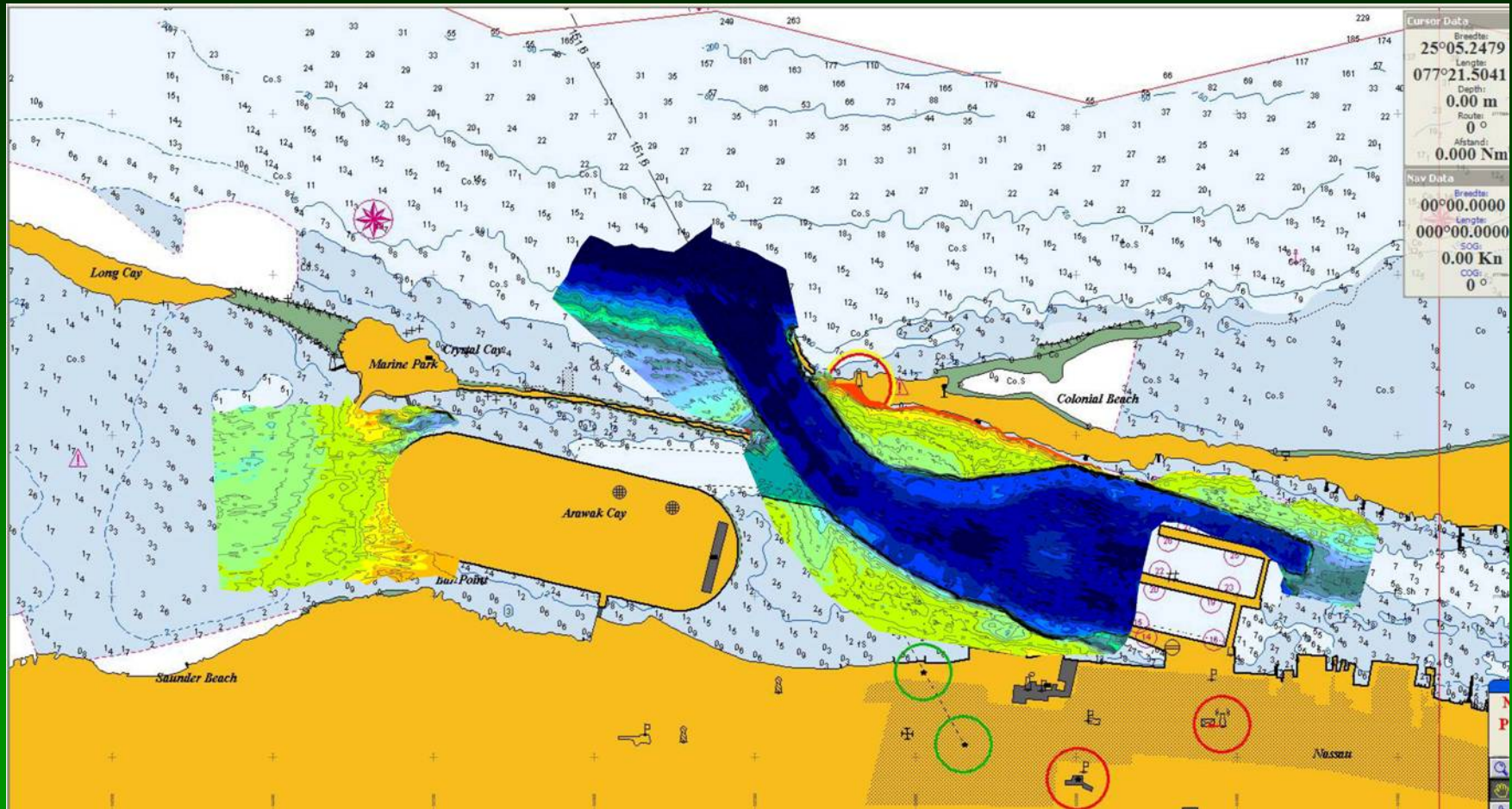
- **Dredging 1.9 million cubic yards of material.**
- **Widening of the Approach Channel.**
- **Lengthening of the Turning Basin.**
- **Installation of 3 Mooring Dolphins.**
- **Westward Extension of Arawak Cay.**
- **Stockpiling of 1.0 million cubic yards of dredge material for future development.**

PROJECT COMPONENTS Cont'd



AERIAL VIEW DREDGE AREAS

PROJECT COMPONENTS Cont'd



**DREDGE AREAS 1, 2, 3, 4, 5
ARAWAK CAY EXTENSION**

PROJECT COMPONENTS Cont'd



ARAWAK CAY EXTENSION AND STOCKPILE AREA

PROJECT EXECUTION

Ministry of Public Works & Transport

Input From:

- **Cox & SHAL Consultants & their Sub-consultants**
- **Ministry of Environment
Port Department
BEST Commission**
- **Ministry of Tourism**
- **Ministry of Finance**
- **Royal Bahamas Defense Force**



PROJECT EXECUTION Cont'd

Site Investigations & Studies:

Ship Simulation Study – Harbour Geometry

Geotechnical - Harbour & Arawak Cay

Hydrographic Surveys - Water Depths

Coastal Engineering – Beach Effects

Environmental EIA – Harbour & Arawak Cay

Preliminary Engineering Report

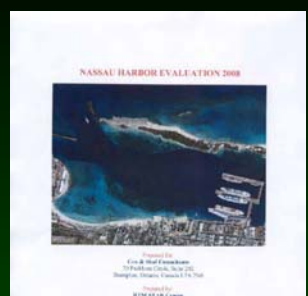
Final Design, Drawings

Specifications

Tender Contract Documents

Review During Construction

Nassau Harbour Port Improvement Project



PROJECT EXECUTION Cont'd

Prequalification of Contractors: August 2008

Issue for Tender: December 23, 2008

Pre-Tender Meeting: January 21, 2009

Tender Receipt: February 24, 2009

Contract Award: March 27, 2009

Mobilized to site: May 2009

PROJECT DETAILS

Contract Value: US \$ 44.2 million

Contractor: Boskalis International b.v.

Subcontractors:

American Bridge Bahamas

Bahamas Marine Construction

Project Timing:

July 1, 2009

Start fieldwork

Aug 13, 2009

Start Dredging

Nov 30, 2009

Complete Dredging

Dec 11, 2009

Arrival, Oasis of the Seas

March 2010

Total Project Completion



PROJECT IMPACTS

No change to Western Esplanade Beach.

No change to Saunders Beach.

**No storage of fish and conch within the Project Area
(Arawak Cay to Potter's Cay)**

Turbidity Controls: Florida EPA Standard.

There will be a visible Turbidity Plume within the mixing zone.



PUBLIC AWARENESS

Meetings held with Government Stakeholders January 2009.

**Meetings held with private stakeholders directly affected
January 2009:**

Mail Boat Association

Tourism Operators

Shipping Agents

Arawak Cay Vendors Association

Potter's Cay Dock Vendors Association

Jet-ski Operators Association

Downtown Development Committee



CONTACT INFORMATION



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NASSAU HARBOUR PORT IMPROVEMENT PROJECT – SPEAKING NOTES

Slide 1

The cruise line industry has a significant impact on tourism providing up to 70% of visitors experiencing the Bahamas, and in particular Nassau. To this end the Government of the Bahamas has seen fit to maintain or improve facilities required to support this vital segment. This has given rise to what is called the Nassau Harbour Port Improvement Project.

The 2004 aerial view is indicative of Nassau Harbour today.

(Explain map pointing out Silver Cay, Arawak Cay, PGW, Potter's Cay, Western Esplanade)

Slide 2 and 3

History provides insight to ascertain answers to the questions why, when and how? A harbour requires to provide among other things adequate protection and ease of access by sea and land. Nassau Harbour fulfills these requirements with natural protection from Paradise Island, a natural channel for sea access, and located in the center of commerce. The continuous development of New Providence and Nassau specifically, has created challenges for expansion to facilitate today's operations.

(Switch to slide 3)

The original designer's intent in the 1960's accounts for some elements of future development with the formation of Kelly Island, also known as Arawak Cay. This island provided an efficient solution for the use of the dredge material. My colleagues from the Project Execution Unit and Arawak Cay Port Development Company will address the other independent elements involved with access and operations. Again in the 1980's when work was required in the harbour, Arawak Cay was used to stockpile the relatively small quantity of dredge material. In 2007, due to changing cruise line industry forces, the Government of the Bahamas was faced with the challenges of providing a reasonable solution to future development, accommodating a new cruise line vessel size.

Slide 4 and 5

The maiden voyage of this new vessel type will be Royal Caribbean Cruise Lines' "Oasis of the Seas" which is significantly larger than the ships calling today in terms of size and passenger capacity. Other cruise lines will follow, and Ministry of Tourism and Aviation will provide details. *(Pictures of the vessel on sea trials at the bottom of the screen).*

(Switch to slide 5)

(Artist rendition of the "Oasis of the Seas")

NASSAU HARBOUR PORT IMPROVEMENT PROJECT – SPEAKING NOTES

Slide 6

In order to accommodate the arrival of the new ships, improvements to the harbour include; widening of the channel, lengthening of the turning basin, increase in the depth of the harbour to 40-ft, installation of 3 mooring dolphins at Prince George Wharf on Pier 1 west and east ends, and Pier 2 west end.

Slide 7 and 8

This is an aerial view of the proposed dredge limits, with the dotted circle representing the existing turning basin. (*Emphasize dredge limits and independence from Arawak Cay*).

(Switch to Slide 8)

This is a depiction of the pre-dredge survey where the dark blue shades represent areas with minimum dredging required; light green shaded areas represent new areas to be dredged (*Area 1 is southside of Paradise Island, Area 2 is north of Western Esplanade, Area 3 is the approach Channel, Area 4 is at the southwest end of Prince George Wharf, Area 5 is the northeast corner of PGW*)

Slide 9

This depicts a typical mooring dolphin arrangement to be installed for securing bow and stern lines where the pier is physically not long enough. The Mooring Dolphin consists of pipe piles, concrete pile cap, and suspended walkway for access (This schematic along with others from the presentation are posted throughout the room for viewing).

Slide 10

The minimum required daily production for dredging is 8,000 to 10,000 cubic yards to achieve the completion time. The most cost effective choice for storage is Arawak Cay. Arawak Cay stockpile capacity is only 600,000 cubic yards, a short fall of 1.3 million cubic yards. Therefore, alternatives were discussed during the design phase, and the most appropriate solution was the extension of Arawak Cay, with size determined by the amount of material to be stockpiled and possible future use of land area.

The Extension is approximately the same width as existing, and 1,000-ft in length from the most extreme point from existing Arawak Cay. A total of 44 acres will be created, consuming approximately 0.7 million cubic yards of material.

Approximately 0.2 million cubic yards of material will be used for reinstatement of the existing Arawak Cay, and 1.0 million cubic yards of material to be stockpiled on the extension. This stockpiled material potential use, as previously indicated by the Government will include downtown revitalization (to be addressed by my colleague of the Downtown Development Committee), use by Department of

NASSAU HARBOUR PORT IMPROVEMENT PROJECT – SPEAKING NOTES

Environmental Health Services for landfill maintenance, and support private sector demand for suitable fill material.

Slide 11

The Ministry of Public Works and Transport is responsible for the execution of the project, and as such known as the Client, with support from Cox and SHAL Joint Venture Consultants, acting as the Engineer. All the relevant agencies have been providing input to the Ministry of Public Works and Transport for necessary permitting of the Project. This is a continuous and coordinated effort for the project duration to ensure a successful completion.

Slide 12

To date listed is the information collected and evaluated, by the project execution team, so informed decisions could be presented for consideration. The environmental impact assessment posted on the Ministry of Environment's website, is the collaboration of all the studies you see listed, which will be explained in more detail by the BEST Commission.

The consultant then produced the necessary documentation for design pre-qualification of contractors, and Tender Documents.

Slide 13 and 14

Timelines for the project to date show actions completed. A total of nine contractors requested pre-qualification, including one Bahamian firm. Seven contractors pre-qualified, with 5 submitting Tenders. These five were considered to be some of the leaders in the industry.

(Switch to Slide 14)

The Government of the Bahamas ultimately selected Boskalis International from the Netherlands to complete the works, with their named sub-contractors American Bridge Bahamas, and Bahamas Marine Construction. Luck has it that the third largest dredge in the world became available to be used on the project, the 'Ursa' (depicted, a cutter suction dredge), capable of removing up to 20,000 cubic yards per day, and pumping material up to 1 mile from the dredge area. This has the potential advantage of reducing the time the construction period is affecting the environment. Preparatory works (which you might have seen on your travels to the Town Meeting tonight) are presently on-going for the anticipated dredging start date of 13 August 2009.

NASSAU HARBOUR PORT IMPROVEMENT PROJECT – SPEAKING NOTES

Slide 15

The EIA's identified several sensitive receptors which included the Beaches of the Hilton Hotel, Western Esplanade, and Saunders Beach; and storage of fish and conch within the potential turbidity limits. There will be a visible turbidity plume. Turbidity is the milkyness in the water seen after inclement weather or ship manoeuvres, but to a greater extent. The project has adopted the Florida Environmental Protection Agency Standards which are considered to be the most stringent in the industry, and application of the Environmental Management Plan will minimize impacts. The EIA's for the project will be explained in more detail by BEST Commission later in the presentation

Slide 16

During the tender period, various meetings were conducted with Government and directly affected private stakeholders which include *(read list on slide)*, to inform and obtain reasonable feedback on the project, so that appropriate amendments to the Tender Documents could be provided if required, or other programs put in place to minimize any potential inconveniences during the project.

Slide 17

The completion of this major improvement to the Port of Nassau, will not only facilitate the expansion of Tourism in the Bahamas, but ultimately impact the level of employment and indeed the sustainability of the standard of living.

THANK YOU!!!!