



Ministerial Statement

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Minister of Public Works

Heritage Wharf Construction Project
The Ministry of Public Works
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Mr. Speaker, in recent months there has been much media attention focused on the construction repairs and upgrades to the Heritage Wharf dock in the West End. There have also been a number of questions posed to my Ministry by the local media as well as from members of this Honourable House regarding matters such as how many Bermudians are on the job, and whether the dock be completed on time. So with the continued onslaught of questions I determined the best course of action was to produce weekly construction progress updates to the media as a countdown to May 15th – the day the mega ship Breakaway was due to arrive.

Coupled with these questions were the continued attacks wherein I have been accused of misleading the public. So today as I stand before this Honourable House, I will explain once again, the facts surrounding this project as they relate to

the associated costs, the number of Bermudians and guest workers on the project, provide the current status of the project, as well as provide an expected completion date.

Mr. Speaker, firstly I would like to clarify that I have not said in any forum that the dock would be fully completed before the arrival of the Breakaway. What I did say back on April 22nd was, “*While all works may not be complete, we remain confident that the dock will be prepared to receive its first ship on May 15th*”.

I would also like to advise that our structural engineers have been liaising with the Norwegian Cruise Line principles, which included the engineers and the Captain of the Breakaway cruise ship, regarding each stage of the development. In turn they were very pleased with the communication as well as the progress of the construction work throughout.

Mr. Speaker, we have also been accused of ignoring requests for information as well as misleading the general public about the status of the project. In no way was I meaning to disrespect anyone. However, as stated in a prior press release.... we had to remain focused on the task at hand – and that was to have the dock ready in time for the arrival of the Breakaway.

Mr. Speaker, I would now like to go into the facts of the project. Firstly, there were a number of local contractors involved with this project. ***Sunrise Construction*** and ***Crisson Construction*** undertook the major elements of work with support from OnSite Engineering. Deliveries to site were organised through ***Fast Forward Freight*** and ***Island Construction Services Ltd, SAL*** have been supplying both reinforcement and concrete, ***Mid Atlantic Steel Supplies*** have

fabricated specialist steel parts for the structures, ***Roger Pimentel*** and ***Nelson Hunt*** have been providing support services - and I am sure there were others that I have not mentioned.

A boost has been provided to local support industries with ***Cambridge Beaches*** and the local restaurants in Dockyard providing accommodation and food and particularly ***Cafe Amici*** who were a huge support, supplying much appreciated deliveries of food late into the night. ***Woodborne Engineering*** and ***Brunel Engineering*** have provided support to the Ministry in undertaking the necessary studies and investigations to ensure that this project has been undertaken in a thorough and professional manner. Brunel will continue to assist in the ***assessment of our transportation system***, not just the hub in Dockyard but also the movement of passengers throughout Bermuda.

Mr. Speaker, environmental studies are in the process of being commissioned as a part of the planning process for this dock and these studies will not only provide data on the effects of the Breakaway but also baseline studies for future developments. These studies will continue as an annual monitoring programme, providing employment for Bermudians not just now but into the future.

As a consequence of our respecting the regulations, undertaking this project correctly, following the guidance of our Planning Officers and the advice of the consultees in the planning process - not only has the necessary financial commitment been injected into the economy of the construction industry, but also into peripheral industry and professions in a long term sustainable fashion.

Mr. Speaker, much has been made of the number of local workers associated with the project and this is this is not a simple question to answer - but I shall try to provide some figures.

Crisson Construction employed **14 local staff** on this project, Sunrise Construction employed **46 local staff** two of whom are work permit holders and subcontracted to **Norwalk Marine** who had **17 staff** on site with work permits early on in the project but have now **scaled that back to (nine) 9**. Onsite Engineering provided one (1) full time Bermudian and a number of part time technical staff who are local residents but work permit holders.

Woodborne supplied three (3) local Bermudian employees, Brunel provided two (2) local engineers one of whom is a work permit holder. The Ministry of Public Works has had four (4) staff committing long hours to the project one (1) of whom is Bermudian, two (2) are full time Ministry working on permits and one (1) has been seconded to the Ministry for the project and is working on a permit.

Additionally some specialist services have been employed for quality testing by from time to time. In short through the project there have been approximately **20 overseas personnel** who have been needed for the project and **71 local employees**. This does not include local support services or local contractors listed above that have contributed to the project. I have said before that the figures are difficult to provide and this remains the case. These numbers are not definitive but they are a fair representation. If there is a desire for a clearer demonstration of the distribution of work then we will happily provide that at the completion of the project.

Again I have said before, the accounts for the project are open book, there are no hidden costs - we will be in a position to say how many hours were worked by local employees and how many by foreign employees. Clearly these figures change on a daily basis and so a snapshot today will not provide a final answer to this question.

Mr. Speaker, regarding the financing, the total authorized funds for this project was **\$28,000,000.00**. To date the project is approximately **70%** complete with the engineers confirming we have spent **\$13,800,000.00** on construction, and approximately **\$3,000,000.00** on investigations, planning, design and studies of the environment and transportation functionality – this equates to **60%** of the total budget for this project.

Some of the remaining works to be completed include the completion of the northern and southern mooring dolphins which are smaller structures - with fewer piles than the breasting dolphins.... along with the installation of access gantries and the provision of essential safety equipment that was not installed as part of the original dock construction project.

Regarding the *status of the wharf when* the Breakaway berthed I can advise the wharf was considered only capable of berthing the Breakaway in a wind strength of **26 knots sustained** - with the most significant loading coming from wind directions out of the north east and south east quadrants. For this reason we have maintained a pilot presence on board for each visit. I must point out that it has **not been necessary** as has been suggested to **keep engines running** and there has never been any concern regarding the Breakaway slipping her moorings.

The new breasting dolphins will provide a guaranteed 32 knots assessment load. The additional mooring dolphins will take the dock up to the required 45 knots sustained wind loading, which was despite reports to the contrary, the required design loading for the original dock design.

Mr. Speaker, the southern breasting dolphin was substantially completed with the final concrete pour before being undertaken before the arrival of the Breakaway and awaiting the fender installation. The northern breasting dolphin was awaiting the final concrete pour which was delayed due to weather. Concrete pours on both are now complete with the fender on the southern dolphin attached. The engineers are planning to install the fender on the northern dolphin in the coming week when the Norwegian Breakaway departs.

Regarding the next steps **Mr. Speaker**, I can advise that we have to complete the installation of bollards and fenders, installation of handrails, ladders and other safety equipment not included in the earlier project.

Completion of the northern mooring dolphin, currently two of the twelve piles have been driven to depth, eight 120 ft. lengths of pile have been placed and are awaiting 60ft extensions.

Installation of the southern mooring dolphin will be completed during the post cruise ship season. Cathodic protection of the new works will also be undertaken as well as further investigation repairs and maintenance of the existing structure which will include testing of the concrete strength, weld integrity, the maintenance of corroded hand-railings, lamp columns etc., repairs and strengthening of concrete and fill works in the Ground Transportation Area,

remedial works to the faulty sewerage system - and a review of all of the support services as well as structural checks on the remainder of the wharf.

In addition to this we will undertake landscaping and shading works in the Ground Transportation Area as this was a requirement of Planning for the original scheme and is yet another area of the project that remains unsatisfactory.

Mr. Speaker, it is anticipated that the dock will be completely finished for the safe berthing of cruise ships 2-4 months into the closed season. For a long term structure with low maintenance issues, possibly 12 to 18 months or longer depending on available funds and the outcomes of our ongoing investigations.

Mr. Speaker, there has also been some talk about galvanized steel that should have been used on the project in accordance with the code. There was even an article in a local newspaper recently by an overseas zinc association claiming that the Ministry had broken away from a *50 year tradition*. To that comment I would reply that this quote is from someone with perhaps a vested interest for a particular zinc association. Therefore, I would expect him to say that galvanizing is essential. (Zinc being the material coating used in galvanizing).

Ironically, **Mr. Speaker**, it was interesting to note that they echoed our previous comments to the press that stated, *"The most cost effective and efficient method of minimizing the risk of rebar corrosion is to ensure that the concrete cover over the reinforcement is of adequate thickness and that the concrete itself is dense and impermeable"*.

The author also states that galvanizing works in these circumstances and delays the onset of corrosion in others circumstances i.e. not that it is a solution to corrosion but that it is part of a solution. It is hardly a convincing argument as the quality of construction is clearly the most important factor. We have however, added corrosion inhibitors and additives to prevent water ingress, thus protecting the rebar more effectively.

In addition we are investigating the most effective manner of adding cathodic protection to the new and existing structures. Therefore, there is no need for galvanizing, as this would have added costs and time to the project.

And as for tradition **Mr. Speaker**, to this I would also say that the argument does not sit very well with a science based industry with constantly improving and evolving technology. In fact, virtually anything that is 50 years old is out dated.

The grades and types of steel we use have all changed, as have the grades of concrete. We often use modern materials such as ***Carbon Fibre*** and ***Kevlar***. Paint systems are also very different and change every few years. In fact virtually all material elements of construction have evolved over the past 50 years so the question begs - why would we still use the same form of rebar protection?

Mr. Speaker, residential buildings are a little different as the loads and strengths involved are so low as to be insignificant in comparison to the structures that we are designing - so possible bond stress losses due to use of galvanizing on reinforcement rod is less pertinent. Indeed many materials that were used 50 years ago are still used such as timber, slate and block. And for clarity, the Building

Officials and Code Administrators International ("BOCA"), which is valid as I have stated in prior press releases, **does not** specify galvanizing.

Further **Mr. Speaker**; allow me to quote from the *American Concrete Institute Manual of Concrete Practice 2010* on protection of metals in concrete against corrosion. It lists the measures in the order of importance as follows:

1. "Design and construction practices that maximize the protection afforded by the Portland cement concrete;
2. Treatments that penetrate, or are applied to the surface of, the reinforced concrete member to prevent the entry of chloride ion in to the concrete; and
3. Techniques that prevent the corrosion of the steel directly.

In category 3, two approaches are possible - to use corrosion-resistant steel or to nullify the effects of chloride ions on unprotected reinforcement".

So you will see **Mr. Speaker**, the least important element is the steel itself with the most important being the prevention. The common corrosion resistant steels are: stainless steel; epoxy coated bars and galvanized bars in that order (galvanizing being the 50 year old traditional method that has drawbacks) methods of nullifying the effect are corrosion inhibitors, penetration reduction admixtures and cathodic protection all of which we are using.

Mr. Speaker, based on the technical information above, it has been quite difficult for our team to communicate the facts to the media who clearly have limited understanding of the subject and somehow, seemed to have formed a firm

opinion on the matter based on vested interested parties and no scientific evidence as well as quoting "anonymous sources".

The Ministry has engineers on staff with extensive experience and knowledge of modern construction techniques including measures to combat corrosion and enhance the durability of structures. These issues have been at the forefront of engineering in many countries over the past decade where whole life costs or the reduction of maintenance costs have become driving factors in design decision making. Our engineers have worked closely with engineers of international standing with a vast amount of marine design experience to find a design solution that is both strong enough to berth this mega ship and will remain a valuable asset long into the future.

The specification of galvanized rebar was not considered the correct choice in this circumstance. Indeed if further protection against corrosion was to be considered then there are other approaches that we would have considered ahead of galvanising which can introduce potential weaknesses in heavily loaded structures.

So let me just be clear in saying again that:

1. It is **not** correct to say that galvanizing is the right way to go;
2. It is **not** correct to say that it is a code requirement for this structure; and,
3. It is **not** modern professional practice to specify galvanizing for major civil structures.

Mr. Speaker, I hope that this overview of the Heritage Wharf construction project has cleared up most of the questions of my colleagues. However, should

there be anything further, I would encourage the same to be submitted to me by way of Parliamentary Questions - to which I would be more than glad to respond.

Thank you **Mr. Speaker!**