

PANAMA CANAL AUTHORITY		VARIATION	PAGE 1 OF 4
1. REQUEST FOR PROPOSAL No.:	2. CONTRACT No.:	3. DATE:	4. VARIATION No.:
RFP-76161	CMC-221427	April 22, 2015	100

5. ISSUED BY:
 PANAMA CANAL AUTHORITY
 Employer's Representative
 Locks Project Management Division
 Building 740, Corozal
 Panama, Republic of Panama

6. NAME AND ADDRESS OF CONTRACTOR (INCLUDE PHYSICAL & POSTAL ADDRESS)	7. CONTRACTOR'S TELEPHONE NUMBER:
Grupo Unidos por el Canal, S.A. Building 22B, Brujas Road Cocoli, Republic of Panama	507-316-9900
	8. CONTRACTOR'S FACSIMILE NUMBER:

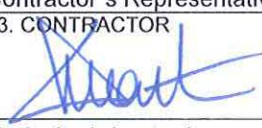
9. VARIATION:
 The contract referred to in item No. 2 is hereby varied as set forth in item 10, entitled "DESCRIPTION OF VARIATION".
 YES. NO. The contractor shall send a copy, duly signed, of this Variation to the Employer's Representative/Contracting Officer.

	9 A. THIS VARIATION IS EXECUTED ON THE BASIS OF: (Specify the legal authority). <u>THE VARIATION DESCRIBED IN ITEM 10 IS HEREBY INCORPORATED AND MADE A PART OF THE CONTRACT.</u>
	9 B. THE CONTRACT REFERRED TO IN ITEM NO. 2, IS VARIED TO INCORPORATE ADMINISTRATIVE CHANGES (such as the paying office, account numbers, etc.).
X	9 C. THIS BILATERAL AGREEMENT IS SIGNED AND INCORPORATED INTO THE CONTRACT REFERRED TO IN ITEM NO. 2 OF THIS FORM, ON THE BASIS OF: (Specify the legal authority) Volume III, Conditions of Contract, Sub-Clause 1.16 [Entire Agreement].
	9 D. OTHER. (Specify manner and the legal authority).
	9 E. ACCOUNT NUMBER (If required):

10. DESCRIPTION OF THE VARIATION (List in accordance with the order of the Contract. If additional space is required, use blank sheets).

See attached

Except for the variation(s) herein specified, all other terms and conditions of the Contract remain unchanged.

11. NAME AND TITLE OF THE PERSON AUTHORIZED TO SIGN (Type or print)	12. NAME AND TITLE OF THE EMPLOYER'S REPRESENTATIVE/CONTRACTING OFFICER (Type or print)		
Giuseppe Quarta Contractor's Representative	Jorge de la Guardia, Employer's Representative		
13. CONTRACTOR	14. DATE:	15. PANAMA CANAL AUTHORITY	16. DATE:
	24 Apr 2015		22/04/2015
(Authorized signature)		(Employer's Representative/Contracting Officer's signature)	

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Design and Construction of the Third Set of Locks

1. The Employer and the Contractor are party to Contract CMC-221427 for the Design and Construction of the Third Set of Locks, dated August 11, 2009 (as the same has been or may be varied, amended, supplemented or otherwise modified (the "Contract")).
2. The Contractor by letter dated October 21, 2013 (GUPC-IAE-2218), submitted a value engineering proposal related to the Approach Structures and Fenders for the Employer's consideration pursuant to Sub-Clause 13.2 [Value Engineering] of the Contract.
3. The Employer by letter dated November 26, 2013 (IAE-UPC-1788) has responded to the Contractor's letter GUPC-IAE-2218, stating that:
 - (i) the Employer was willing to modify the approach structure lengths and the approach structure seismic criteria as described below to offset any additional fendering system costs of the improved design concept described by the Contractor in RFI 528;
 - (ii) the modified approach structure design details and fendering design proposed in RFI 528 were required to be submitted for the Employer's review;
 - (iii) the acceptance of the value engineering proposal would not entitle the Contractor to any adjustment to the Contract Price and/or any extension of time to the Time for Completion;
4. In letter dated February 28, 2014 (GUPC-IAE-2458), the Contractor stated that it had "found an agreement with the Employer to adjust several Employer's Requirements regarding the Approach Structures lengths and seismic design criteria, as offered by the Contractor through the Value Engineering proposal explained in its letter GUPC-IAE-2218" and requested the Employer to issue a Variation.
5. The Parties have now agreed to a Variation of the Contract as hereinafter stated, but not further or otherwise.

THE PARTIES HEREBY AGREE AS FOLLOWS:

1. **Volume II, Part 1, Section 01 81 16.13 [Seismic Design Criteria]:** Delete Paragraph 1.03 A. 1. d in its entirety and replace it with the following:
 - d. *"The structural response shall remain essentially elastic under this earthquake loading. For the Approach Structures, the Contractor shall design using a Response Modification Coefficient according to ASCE 7-05 Chapter 12.2 not higher than 3.0, based on a proper design of the details of these*



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Design and Construction of the Third Set of Locks

structures to allow energy dissipation through a controlled inelastic behavior
 ”.

2. **Volume II, Part 1, Section 01 81 16 [Locks Structures]:** Delete the first line of Paragraph 1.03 A. 1. a. in its entirety and replace it with the following:

“The southwest approach structure at the Pacific Ocean entrance shall have a minimum length of 400 m and the northwest approach structure at the Gatun Lake entrance shall have a minimum length of 450 m, measured from the respective Knuckle.”

3. **Volume II, Part 1, Section 01 81 16 [Locks Structures]:** Delete the first line of Paragraph 1.03 A. 2. a. in its entirety and replace it with the following:

“The northeast approach structure at the Atlantic Ocean entrance shall have a minimum length of 450 m measured from the Knuckle, and shall be parallel to the lock-chamber axis and in line with and extending from the eastern lock wall and be suitable for tying up the range of vessels that will utilize the waterway.”

4. **Volume II, Part 1, Section 01 81 16 [Locks Structures]:** Delete Paragraph 1.04 B. 4 in its entirety and replace it with the following:

4. *“Vertical Live Load: On the horizontal surface, a vertical live load of $p=10 \text{ kN/m}^2$ shall be applied and included as the normal earth pressure load. The concentrated load due to outriggers from cranes that can access the top of the walls shall also be applied. In seismic conditions, only half of the live load shall be taken into account (5 kN/m^2), except for the Approach Structures. For the Approach Structures no live load shall be included in the Seismic Calculations.”*

5. **Volume II, Part 1, Section 01 81 16 [Locks Structures]:** In Paragraph 1.04 C. 5. delete the Table for Normal Structures in its entirety and replace it with the following:

Normal Structures			
Stability Analysis	Load Condition Category		
	<i>Usual (U)*</i>	<i>Unusual (UN)*</i>	<i>Extreme (E)*</i>
<i>Sliding</i>	1.5	1.3	1.1
<i>Flotation</i>	1.3	1.2	1.1
<i>Resultant Location</i>	100% of base in compression	75% of base in compression	Resultant within base

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Normal Structures			
Stability Analysis	Load Condition Category		
	<i>Usual (U)*</i>	<i>Unusual (UN)*</i>	<i>Extreme (E)*</i>
		<i>Approach Structures 50% of base in compression</i>	
<i>Foundation Bearing Press</i>	\leq <i>allowable</i>	\leq <i>allowable</i>	\leq <i>1.33 allowable</i>
<i>A7Deleted textA7</i>			

* See Subparagraph 1.04 C.2.

6. The modified approach structure design details and fendering design proposed in RFI 528 are to be submitted for review in accordance with the requirements of Sub-Clause 5.2 of the Conditions of Contract and Section 01 33 00 [Submittal Procedures] of the Employer's Requirements.
7. All of the Contractor's other existing and ongoing obligations as to the progress of the Works remain unaffected. In particular the Approach Structures shall comply with Paragraph 1.04 A. 5. [Using Approach Structures] of Section 01 92 00 [Facility Operation] of the Employer's Requirements..
8. The Parties agree that the Contractor shall have no claims for additional time or money or any other relief or entitlement of any kind as a direct consequence of this Variation Agreement No. 100 or arising out of it or in any way in connection with it.
