



DEPARTMENT OF THE NAVY
Naval Facilities Engineering Command Southeast
Jacksonville, FL 32212-0030

IN REPLY REFER TO:
11011
Code OPDBRM/290
March 7, 2012

Mr. Jim Scholl
Key West City Manager
P. O. Box 1409
Key West, FL 33040

SUBJECT: SERVICE-IN-KIND PROJECT APPROVAL: MOLE PIER REPAIRS

Enclosure: (1) Naval Air Station Key West, Public Works Officer Letter dated 3 March 2012


Dear Mr. Scholl,

As requested by enclosure (1) this letter serves as the approval for the use of In-Kind-Funds for Mole Pier structural repairs to the Mole Pier fencing. The engineering design work, as it relates to this project, shall be performed in accordance with a statement of work to be provided to the following address upon finalization:

Robin McCarthy
NAVFAC SE
Building 135 North
P.O. Box 30
Jacksonville, FL 32212-0030

Costs associated with this effort shall not exceed the total estimated cost of \$4,070,000.00 without prior written approval.

My point of contact for this action is Robin McCarthy, NAVFAC Southeast Realty Specialist, who can be reached at (904)542-6134 or via email: robin.mccarthy@navy.mil.


ROBERT W. MCDOWBELL, III, RA, AICP
Real Estate Contracting Officer

Copy to:
Commanding Officer, Naval Air Station Key West
Public Works Officer, Naval Air Station Key West



DEPARTMENT OF THE NAVY

NAVAL AIR STATION
P O BOX 9001
KEY WEST, FL 33040-9001

11000

Ser PR712/778

3 Mar 12

From: Commanding Officer, Naval Air Station, Key West
To: Commanding Officer, Naval Facilities Engineering
Command Southeast (Code OPDB), Bldg 135, Naval Air
Station Jacksonville, FL 32212

Subj: CONSIDERATION OF CITY OF KEY WEST PAYMENT FOR MOLE PEIR
REPAIRS IN LIEU OF CITY OF KEY WEST RENT PAYMENT FOR
USING THE MOLE PIER

Ref: (a) Resolution 03-138, Approving on 16 APR 03 a Lease
Between the United States of America and the City
of Key West for use of the Mole Pier

(b) U.S. Navy Lease N62467-03-RP-00077 with the City of
Key West

Encl: (1) Appledore estimate for Mole Pier repair in Nov 2011

(2) Statement of work (SOW) repairs to Mole Pier

(3) Paving statement of work

(4) Paving planning estimate

1. This letter is submitted in accordance with references (a)
and (b).

2. We formally request concurrence to accept an In-Kind
Consideration for the City's use of the Mole Pier in lieu of
cash payment for rent.

3. It is the Navy and City of Key West's interest to preserve
current and future operation of the port. The Repair is
necessary to maintain the structural integrity of the Mole Pier.

4. The form of In-Kind Consideration is the City's payment for
repairs to the Mole Pier.

5. We request authorization to proceed, and an approval letter be sent to the City of Key West requesting the total "Not To Exceed" amount for the Mole Pier repair to be \$4,070,000.00.

6. The Point of Contact (POC) at City of Key West for this project is:

Mr. J. K. Scholl
City of Key West Manager
P.O. Box 1409
Key West, FL 33041-1409


7. Please direct any questions or comments to my POC:
Mr. William Knetge, at (305) 293-2133 or
william.knetge@navy.mil.

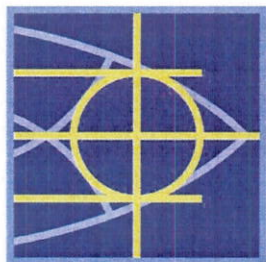
Sincerely,



P. D. MEAGHER
LCDR, CEC, USN
By direction

Enclosure 1

		COST ESTIMATE			SHEET 1 OF 1		
ACTIVITY AND LOCATION			DATE PREPARED: NOVEMBER 2011				
Naval Air Station Key West Truman Annex, Key West, Florida Breakwater 497			CONTRACT NO.: N62473-06-D-3004 TASK ORDER NO.: 0051				
REVISED 100% SUBMISSION			APPLEDORE MARINE ENGINEERING INC.				
UNIFORMAT II CODE	ITEM DESCRIPTION	QUANTITY ¹	UNIT	RATE	COST	%	
H1010	Substructure	-	-	-	\$1,326,940	82%	
H1010.01.06	Encasement (concrete cap)	550	CY	\$400	\$220,000	14%	
H1010.01.06	Rebar	25000	LB	\$1.45	\$36,250	2%	
H1010.01.06	Install dowels	1600	EA	\$26	\$41,600	3%	
H1010.01.07	Coating	35100	SF	\$2.6	\$91,260	6%	
H1010.03.01	Install steel sheet pile	13000	SF	\$26.3	\$341,250	21%	
H1010.03.01	Sheet pile shoes	186	EA	\$155	\$28,830	2%	
H1010.03.02	Rock Anchor Wale	370	LF	\$435	\$160,950	10%	
H1010.03.01	Drill through existing steel sheet pile	34	EA	\$2,625	\$89,250	6%	
H1010.03.02	Install rock anchors	31	EA	\$6,300	\$195,300	12%	
H1010.03.08	Install flowable fill material	750	CY	\$163	\$122,250	8%	
H1020	Superstructure	-	-	-	\$7,650	0%	
H1020.03.01	Replace Frames & Covers	3	EA	\$2,550	\$7,650	0%	
H1030	Deck Components	-	-	-	\$140,725	9%	
H1030.02.01	Install concrete apron	80	CY	\$410	\$32,800	2%	
H1030.02.01	Install bituminous pavement	285	TN	\$105	\$29,925	2%	
H1030.02.01	Excavation/Back Fill	1500	CY	\$52	\$78,000	5%	
H5020	Electrical Utilities	-	-	-	\$100,540	6%	
H5020.01	Demolish Electrical Manhole	2	EA	\$3,100	\$6,200	0%	
H5020.01	Demolish Electrical Ductbank	1	EA	\$1,760	\$1,760	0%	
H5020.01	Trace, Label, And Remove Electrical Cabling	1	EA	\$1,510	\$1,510	0%	
H5020.01	Install 4-Way Electrical Ductbank	80	LF	\$105	\$8,400	1%	
H5020.01	Install Traffic Rated Electrical Manhole	2	EA	\$10,700	\$21,400	1%	
H5020.01	#8 RWH Electrical Wire	9200	LF	\$1.12	\$10,304	1%	
H5020.01	#6 RWH Electrical Wire	700	LF	\$1.63	\$1,141	0%	
H5020.02	Demolish Telecommunications Manhole	2	EA	\$3,100	\$6,200	0%	
H5020.02	Demolish Telecommunications Ductbank	1	EA	\$2,075	\$2,075	0%	
H5020.02	Demolish Abandoned Communications Line	1	EA	\$260	\$500	0%	
H5020.02	AT&T FEES	1	EA	\$5,200	\$5,200	0%	
H5020.02	Install 4-Way Telecommunications Ductbank	100	LF	\$105	\$10,500	1%	
H5020.02	Install Traffic Rated Telecommunications Manhole	2	EA	\$11,500	\$23,000	1%	
H5020.03	Temporary Light Fixture Rental	1	EA	\$2,350	\$2,350	0%	
H6010	In-Water or Over-Water Demolition	-	-	-	\$45,000	3%	
H6010.02.01	Demolition / Site Preparation	1	LS	\$45,000	\$45,000	3%	
					Subtotal	\$1,620,855	100%
Z10	Design Allowance				15%		
Z1010	Design Contingency ²			0%	\$0		
Z1015	Coral Mitigation				TBD		
Z1020	Construction Contingency ²			15%	\$243,128		
Z1030	Engineering Title II			10%	\$232,998		
Z1040	Engineering PCAS			5%	\$116,499		
Z1050	SIQH			8%	\$186,398		
					Subtotal	\$2,399,878	
Z20	Overhead and Profit				25%		
Z2010	Overhead			10%	\$186,398		
Z2020	Profit			15%	\$279,597		
					Subtotal	\$2,865,874	
Z30	Inflation Allowance³				2 yr @ 5%/yr	\$358,234	
Estimated Budget Amount⁴					\$3,224,109		
Notes: 1. The quantity of defects has been increased by 25% to account for additional deterioration that may occur prior to the actual time of construction. 2. Design contingency allows for additional items or changes that occur as a design progresses. Contingencies set at the Facility Assessment stage reduce to zero by completion of the Construction Documents stage, when complete project information is available. Construction contingency accounts for risks associated with unknown conditions and is based on judgement. 3. Inflation allowance assumes 2012 construction start at 5% increase per year. 4. The individual line items comprising the estimated cost are accurate in context of the magnitude of the total project cost; it should be anticipated that individual item costs taken separately, would be greater. Estimated Budget Amount does not include costs for Coral Mitigation or Utility Repairs.							



NAVFAC
Naval Facilities Engineering Command

REVISED 100% SUBMISSION

Calculations and Basis of Design

**NAVAL STATION, KEY WEST
KEY WEST, FLORIDA**

**Contract No. N62473-06-D-3004
Task Order No. 0051**

November 2011

By:

Appledore Marine Engineering, Inc.
600 State Street, Suite E
Portsmouth, New Hampshire 03801

Prepared for

Naval Facilities Engineering Service Center - East Coast Detachment
720 Kennon Street SE,
Building 36, Suite 333
Washington Navy Yard, DC 20374

Enclosure 2

Key West Bulkhead 497 Repairs
Appledore Marine Engineering, Inc
November 2011

BASIS OF DESIGN

Background

In June 2009 a condition assessment of the various waterfront facilities at Naval Air Station Key West was prepared as part of the Specialized Waterfront Facilities Inspection Program administered by the Naval Facilities Engineering Service Center, East Coast Detachment (NFESC-ECDET, Code 55). This program provides above water and underwater inspection, assessment, structural analysis, repair recommendations, estimates of repair cost, and design of repairs for waterfront facilities. This inspection and report was provided by engineer-divers from Appledore Marine Engineering, Inc., (AMEI) under the responsible charge of Robert M. Snover, P.E., in accordance with Delivery Order No. 0022 of Contract No. N62473-06-D-3004. Funding for the Routine Inspection was provided by Commander Naval Installations Command (CNIC). This delivery order provided the engineering services necessary to perform a Routine Waterfront Facilities Inspection and to assess the apparent general condition of the structural systems at the various waterfront facilities at Naval Air Station Key West, in Key West, Florida. This inspection determined that the Truman Annex Facilities are typically in Satisfactory to Fair condition, with the exception of Breakwater (bulkhead) 497 which was found to have corrosion holes in the steel sheet pile bulkhead that had provided a pathway for the loss of fill material and the undermining of the structure. This 67 year old facility was found to be in Serious condition, with advanced deterioration, overstressing or breakage that may have significantly affected the load bearing capacity of primary structural components, and that local failures were possible. The Report recommended that the Navy prohibit all vehicle and crane live loads within 16 feet of the bulkhead wall along a 350' section of the bulkhead until repairs could be completed.

Breakwater 497 has exceeded its original design life and is approaching the end of its service life due to corrosion of the steel sheet pile bulkhead. This facility requires significant rehabilitation in order to extend the service life, therefore in 2009 two concepts were initially evaluated, repair and partial replacement.

The repair concept consists of patching the existing bulkhead to prevent additional loss of fill material. Sacrificial anodes would be placed along the bulkhead to prevent additional corrosion holes from developing and the top of deck would be replaced. This option would address the deficiencies found during the inspection; however it would not address the existing corrosion losses to the bulkhead or condition of the suspect tie rods.

The partial replacement concept consists of installing a new steel sheet pile bulkhead outboard of the existing bulkhead similar to the groin and bulkhead 441 repairs completed in 2004. This repair concept would address the deficiencies found during the inspection and would significantly increase the service life of the facility.

It was noted in 2009 that there was a high likelihood of significant construction delays and costly change orders for the repair concept due to the age of the structure and possibility of deteriorated tie rods, as and such, the most appropriate solution may be the partial bulkhead replacement option.

In September 2009 Delivery Order No. 0033 was issued to complete field inspections and investigations of Bulkhead 497, and prepare plans and technical specifications to repair the failing bulkhead. As part of the design process, various repair concepts were investigated and presented for consideration and

Enclosure 2

Key West Bulkhead 497 Repairs
Appledore Marine Engineering, Inc
November 2011

selection by NAS Key West. During the 60% Design Brief meeting in December 2009, NAS Key West requested that the Delivery Order be modified to include preparing regulatory agency permit applications for submission to regulatory agencies by the Navy, and additional U/W benthic & geotechnical surveys.

In June 2010 a modification to Delivery Order No. 0033 was issued to complete U/W benthic & geotechnical surveys field inspections, prepare regulatory permit applications, and prepare Final Repair plans and technical specifications to repair the failing bulkhead. The U/W benthic & geotechnical surveys, field inspections and permit meetings with regulators were completed in the summer of 2010. It was observed during these field inspections that the continued progressive subsidence of the area adjacent to the bulkhead was beginning to impact the electrical and telephone manholes and ductbanks that run parallel to the bulkhead, and requested that the Navy confirm the report that the electric and telephone lines in these manholes and ductbanks were abandoned, and as such could be simply filled and left in place. The 75% design submission and Draft permit application were submitted to NAS Key West in September 2010. Government review comments on the 75% submission indicate significant changes to the perceived existing conditions. The comments indicated that the undermined electric manholes and ductbanks contain active 13.2kV primary electric cabling, and are not abandoned as earlier reported. The comments also stated that the medium voltage feeders will need to be incorporated into the pier repair project. An additional comment requested the plans and specifications be modified to provide for construction contract award by the City of Key West instead of the Navy.

Subsequent to the 100% submittal, the Government elected to forego the earlier prescribed utility repairs, therefore the contract documents submitted on July 7th, 2011 have eliminated reference to future utility repairs and are focused exclusively on the structural repair of the bulkhead.

In September of 2011, Delivery Order No. 0051 was issued to include the provision for the in-kind replacement of the existing impacted utilities within the project area. Field work was conducted in October of 2011 and included locating underground utilities by Craig A. Smith Associates and utility inspections by TranSystems. This inspection determined that the 13.2kv primary electric service ductwork was not accurately shown in the as-built plans and is actually located outside the area of subsidence and does not require replacement. The only utilities requiring replacement are the secondary and telecommunications manholes located near Stations 2+40 and 3+60. The previous 100% submittal (plans, specifications, and cost estimate) have been revised to incorporate the utility repairs. Please note that the cost estimate does not include the coral mitigation donation cost as the final benthic survey has not been completed. It is estimated that the construction will take between 6 and 9 months to complete.

Design Loading

AMEI was tasked to design a repair of the bulkhead and 3 concept repair options were developed for the 60% Submission.

- Concept A – Anchored sheet pile wall
- Concept B – Cantilever sheet pile wall
- Concept C – Sheet pile wall with concrete deadman

Concept A was chosen due to ease of construction and lower cost.

The following loads were used in the design of repairs:

Enclosure 2

Key West Bulkhead 497 Repairs
Appledore Marine Engineering, Inc
November 2011

- AASHTO HS-20 truck
- Uniform 600 psf live load surcharge to match assumed loading on adjacent berths

Design is in accordance with the Guidance from references listed on next page.

Repair Methodology

The repair detailed in the accompanying 100% design submittal includes the installation of approximately 425 ± LF of new steel sheet pile (ssp) wall driven approximately 5 feet seaward of the existing bulkhead wall. Rock anchors (1 3/8"Φ) spaced at 12'-5" are connected to a steel wale at the top of the ssp wall and serves to secure the wall in place. The area behind the existing bulkhead wall will be excavated to allow installation of the rock anchors and to expose potential soil voids caused by loss of material through the deteriorated bulkhead wall. CLSM (controlled low strength material) flowable fill will be tremied to fill the annular space between the new and existing sheet pile walls.

A new concrete pile cap will be cast over the top of the new sheet pile wall and will match the existing concrete pile cap to dissipate the energy caused by wave action.

An existing 10'x425±' section of the 6" concrete slab directly adjacent to the existing bulkhead wall will be replaced due to failure. Bituminous pavement will also be replaced within the limits of work.

Existing Electrical Conditions

There are (3) 13.8kV to 277/480V substations located on the mole pier. They all contain incoming feeder selector switches, 3750kVA transformers, and walk-in type switchgear lineups. These substations only serve the ship Viking plugs in their vicinity. No anticipated outage is anticipated for the 13.8kV lines and substations.

The area of construction contains (3) separate classes of manholes: primary (15kV cabling) manholes that serve the substations previously described, secondary (277/480V cabling) manholes, and telephone manholes that contain cabling owned by AT&T. Note that the 277/480V ductbank and the communications ductbank both come together with the primary ductbank after exiting their respective manholes. Once together, the combined ductbanks form a 16-way ductbank. The 277/480V branch circuits originate from a panelboard located adjacent to existing pump station and transformer. A 277/480V distribution panelboard contains multiple 2-pole circuit breakers that serve all the pier mounted 480V to 110V power bunkers. The panelboard also serves the lighting contactor that serves all the pole mounted lights on the pier. The circuits just mentioned comprise the majority of the branch circuits observed in the secondary manhole(s).

Pier light poles and fixtures are served out of a lighting contactor panel located adjacent to the outdoor 277/480V panel. The lighting circuit extends through the secondary manhole system. Also mounted to the light poles are two camera systems owned by the city and the Coast Guard. It is unclear how these camera systems are connected to data and power.

Enclosure 3



THE CITY OF KEY WEST
3140 Flagler St,
Key West, Florida 330-40

ADDENDUM #2
Repairs to Navy Mole Bulkhead 497
Invitation to Bid: 12-007
9 February 2012

This Addendum is issued as supplemental information to the bid package for clarification of certain matters of both a general and a technical nature. The referenced bid package is amended in accordance with the following items:

1. **Alternate Bid Item: Milling and Paving:** Contractor shall mill and pave the additional areas identified as 2 through 4 on the attached drawings. Asphalt shall be one 1.25" lift of FDOT S-1/SP12.5 or JMF equivalent topped with one 0.75" lift of FDOT S-3/SP9.5 or JMF equivalent for 2" total thickness... Existing drainage patterns shall be maintained. Attachment A is a drawing of the area. The City reserves the right to award to the Base Bid only or Base Bid plus Alternate Bid Item.
2. **Specifications:** See attached specification 32-01-16.17 Cold Milling and Paving shall act as the technical specification for the work covered under this addendum
3. **Specifications:** See attached specification 32-13-17 Hot Mix Bituminous Pavement (used at MCSF Blount Island) shall act as the technical specifications for the work covered under this addendum
4. **Bid Sheet:** Attached is a revised BID FORM and shall replace the Bid Form in section 00-41-13.

