STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1

FOR

KALANIANAOLE HIGHWAY
EMERGENCY REPAIRS OF IHIIHILAUAKEA BRIDGE
PROJECT NO. 72B-01-13M
DISTRICT OF HONOLULU
ISLAND OF OAHU
FY 2013

The following amendments shall be made to the Bid Documents:

A. SPECIAL PROVISIONS

1. Replace Table of Contents Pages 1 and 2, dated 1/16/13, with the attached Table of Contents Pages 1 and 2, dated r02/20/13.

2. The attached Section 202 – Removal of Structures and Obstructions shall be incorporated and made a part of the Special Provision.

3. Replace pages 510-1a to 510-13a dated 1/15/13 with the attached pages 510-1a to 510-13a dated r02/20/13.

B. PROPOSAL

1. Replace pages P- 10 and P-11 dated 12/12/12 with the attached pages P-10 and P-11 dated r02/20/13.

C. PLANS

1. Revise Plan Sheet No.8 by amending the following:

   a. Revise Note 2 to read as follows:

   "Existing channel below bridge is a dry gulch and is not subject to tidal water influences. The U.S. Army Corps of Engineers has determined that a Department of the Army (DA) permit is not required for this repair project. Construction materials, scaffolding, shoring, etc. that is temporarily placed in the dry gulch shall not enter the ocean. Refer to General Notes on sheet S-1, Water Pollution and Erosion Control Notes on sheets S-2 and S-3, and Structural Notes on sheet S-4."

b. Revise Notes by adding Note 3 to read as follows:

"Existing concrete and wood debris, and other items as directed by the Engineer, in channel below bridge shall be removed and disposed of off-site at a proper disposal site. This item shall be paid for on a Force Account basis. Refer to Special Provisions Section 202 "Removal of Structures and Obstructions"."

c. Amend Bridge Profile 2/S-5 by deleting the callout "Estimated High-Water Mark (See Note 2)", and the horizontal line associated with this callout.

2. Revise Plan Sheet No.23 by amending the following:

a. Revise Fiberwrap General Note 1 to read as follows:

"Provide Tyfo Fibrwrap Systems (ICC ESR#2103), Sika CarboDur and Sikawrap Systems, or approved equal as indicated at all identified locations in the plans. Alternate FRP composite system shall have a current ICC Evaluation Service Report compliant with the 2009 IBC and shall submit stamped calculations verifying equivalency to the specified detail."

b. Revise Fiberwrap General Notes by deleting note 2 in its entirety.

C. PRE-BID MEETING MINUTES

Pre-bid Meeting Minutes and questions and answers from prospective bidder, attendance sheet, and meeting agenda are attached for your information.

Please acknowledge receipt of this Addendum No. 1 by recording the date of its receipt in the space provided on page P-4 of the proposal.

GLENN M. OKIMOTO
Director of Transportation

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END OF TABLE OF CONTENTS

SECTION 202 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Make the following amendment to said Section:

(I) Amend **Section 202.03 Construction**, by adding the following paragraph after line 118 to read as follows:

"**(D) Removal of Concrete and Wood Debris.** Remove existing concrete and wood debris from channel below bridge structure as directed by the Engineer. Remove and dispose of materials in accordance with Subsection 201.03(F) – Removal and Disposal of Material."

(II) Amend **Section 202.04 Measurement,** by adding the following paragraph after line 121 to read as follows:

" The Engineer will measure removal of concrete and wood debris on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation, and as ordered by the Engineer."

(III) Amend **Section 202.05 Payment**, by adding the following paragraph after line 125 to read as follows:

" The Engineer will pay for removal of concrete and wood debris on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation. Payment will be full compensation for the work prescribed in this section, by the Engineer, and the contract documents."

(IV) Amend **Section 202.05 Payment**, by adding the following Pay Item after line 131 to read as follows:

"Removal of concrete and wood debris Force Account"

END OF SECTION 202

Make the following Section a part of the Standard Specifications:

"SECTION 510 – EXTERNALLY BONDED FIBER REINFORCED POLYMER (FRP) STRENGTHENING SYSTEM

510.01 Description.

(A) This specification is intended to define the minimum requirements of structural strengthening using externally bonded fiber reinforced polymer (FRP) composite systems.

The work includes the furnishing of all materials, labor, equipment and services for the supply, installation and finish of all structural strengthening using externally bonded FRP composite system.

The general contractor or subcontractor shall furnish all materials, tools, equipment, transportation, necessary storage, access, labor and supervision required for the proper installation of the externally bonded FRP composite system

(B) Work Included. This Section of the Specification is not necessarily complete in itself. Read in conjunction with the Contract Document.

(C) Guarantee of Work. Refer to Hawaii Standard Specifications, Section 108 Prosecution and Progress, Subsection 108.17 Guarantee of Work.

510.02 Materials.

(A) Reference Standards. The publications listed below form a part of this specification to the extent referenced. Where a date is given for referenced standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of the Notice to Proceed.

(1) International Code Council (ICC).

(a) ICC AC125, Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber Reinforced Polymer (FRP) Composite Systems.

(b) ICC AC178, Interim Criteria for Inspection and Verification of Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber

Reinforced (FRP) Composite Systems.

(2) American Standard for Testing and Materials (ASTM).

(a) ASTM D7565, Standard Test Method for Determining Tensile Properties of Fiber Reinforced Polymer Matrix Composites Used for Strengthening of Civil Structures.

(b) ASTM D3039, Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.

(c) ASTM D4541, Standard Test Method for Pull-off Strength of Coating Using Portable Adhesive-Testers.

(3) American Concrete Institute (ACI).

(a) ACI 440.2R-08, Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures.

(4) International Concrete Repair Institute (ICRI).

(a) ICRI Technical Guideline No. 310.2-1997 (formerly No. 03732), Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

(B) Materials. All materials used for the FRP system shall be furnished from the same manufacturer and shall be used as a system. Acceptable manufacturers are as follows:

(1) Fyfe Co. LLC

(2) Sika Corporation

(3) Other alternate FRP manufacturers will be considered by the Engineer. Alternate FRP systems must provide all items listed in Subsection 510.02(C) Submittals.

(C) Submittals.

(1) Quality Control and Quality Assurance.

(a) Submit product data indicating product standards, physical and chemical characteristics, technical

specifications, limitations, installation instructions, maintenance instructions and general recommendations regarding each individual material.

(b) Only epoxy resins will be accepted for construction of FRP systems referenced in this specification. Other resins, such as polyesters/vinyl esters, are not allowed as substitutes. The manufacturer shall clearly define the epoxy resin working time. Any batch that exceeds the batch life shall not be used.

(c) The proposed FRP Systems shall be compliant with ICC AC125 and provide a current ICC Evaluation Service Report, compliant with the 2006 International Building Code (IBC).

(d) Submit a list of completed surface bonded FRP composite strengthening projects completed with the manufacturer's FRP composite system in the past 3 years. The list should include at a minimum 25 projects with proposed FRP system, the dates of work, type, description and amount of work performed.

(e) Surface bonded FRP composite system shall be installed by certified applicator with written consent from manufacturer that the contractor has been trained. Certified applicator shall have a minimum of 3 years experience in performing FRP composite retrofits.

(f) The Engineer may suspend the work if the Contractor substitutes an unapproved fiber reinforced composite system or unapproved personnel during construction.

(2) Working drawings.

(a) Working drawings shall detail the type, locations, dimensions, numbers of layers, and orientation of all FRP materials and coatings to be installed.

(b) A list of two different manufacturer approved testing laboratories that can perform the required ASTM D7565 and/or ASTM D3039 tests as per Subsection 510.03(B).

(3) Product Information.

(a) Provide an ICC Evaluation Service Report, compliant with the 2006 IBC, for the proposed products.

(b) Provide approved UL rated assembly data for any required fire-resistant finishes (e.g. 2-hour/4-hour rated assembly per ASTM E119, Class 1 Flame & Smoke per ASTM E84).

(c) Properties of the composite materials as determined by independent laboratory testing in accordance with ASTM D7565 and/or ASTM D3039 (tensile modulus, stress and strain).

(d) Large-scale structural testing results of the proposed composite system from independent laboratories on similar structural sections.

(e) Installation procedures, maintenance instructions, and general recommendations regarding each material to be used.

(f) Manufacturer's Material Safety Data Sheets (MSDS) for all materials to be used.

(g) Manufacturer's product data sheet indicating physical, mechanical and chemical characteristics of all materials used in the FRP system.

(h) Written verification from the manufacturer that their applicator has received the required certifications and training.

(i) Certification by the manufacturer that supplied products comply with local regulations controlling use of volatile organic compounds (VOC's).

(j) Products that require the use of respirators do not comply with local regulations controlling use of VOC's and shall not be allowed.

(4) Performance.

(a) Design the composite system to achieve the structural performance shown on the structural drawings. Design calculations for the composite system shall be stamped by a

Hawaii licensed Structural Engineer and submitted for approval by the Engineer. The modulus (E) and associated area (A) of the FRP system shall be based on published design values consistent with long term durability exposure testing.

(b) Calculations shall be based on the design modulus and associated area of the composite to be installed. FRP design values must be lower than the calculated mean determined from the test results received from the ASTM D7565 and/or ASTM D3039 field test specimens (See Subsection 510.03(B) Inspection and Testing).

(D) Product Delivery, Handling and Storage.

(1) Deliver epoxy materials in factory-sealed containers with the manufacturer's labels intact and legible with verification of date of manufacture and shelf life.

(2) Store materials in a protected area at a temperature between 40 degrees F and 100 degrees F.

(3) Products shall be stored according to the manufacturer's requirements and shall avoid contact with soil and moisture. Products shall be stored to avoid UV exposure.

(4) Prior to construction, the trades shall be briefed on any new or unusual construction procedures to ensure that they are aware of special conditions (e.g. new penetrations, construction anomalies).

(E) Products.

Products shall be furnished from one of the following manufacturers, or approved equal:

(1) Tyfo® Fibrwrap® System(s) by Fyfe Co. LLC. Products include:

(a) Composite fabric:

SCH fiber – primary carbon fiber, unidirectional.

WEB fiber – bidirectional (0.90) glass fabric.

(b) Epoxy saturant/primer: Tyfo® S epoxy is used as a primer and is also combined with the fiber to form the Tyfo® Fibrwrap® System.

(c) Primer/Filler: Thickened Tyfo® S, WS, WP or TC thickened epoxy for protective seal coat, filling voids and primer where needed.

(d) Finishes: Tyfo® A, Tyfo® U, Tyfo® HS for protection from ultraviolet and to provide long-term environmental durability. Alternate finishes must be approved by the owner.

(e) Fire Resistant Finishes: Tyfo® RR, Tyfo® FC/F, Tyfo® 4HFL, Tyfo® AFP for any applicable fire resistant finish. Alternate finishes must be approved by the owner.

Field thickened epoxy matrix, which is compatible with composite system's resin matrix, may be used to patch "bugholes" up to 1-1/2 inches in depth and to fill voids.

Epoxies other than the pre-qualified materials above can be evaluated prior to the tender closing; materials meeting the requirements will be allowed by written addendum.

(2) Sika CarboDur and SikaWrap Hex 103C, by Sika Corporation.

(3) The manufacturer shall provide specific information on physical, mechanical and chemical properties of fiber, epoxy resin and FRP composite.

(F) Certified Applicators.

Installations of the Tyfo® Fibrwrap® Systems, Sika CarboDur and SikaWrap Systems, or approved equal, shall be performed by certified applicators only. Certified applicators shall have the minimum experience and written consent as recommended by the FRP manufacturer. Refer to Subsection 510.02(C)(1)(e) and Subsection 510.02(C)(3)(h).

(G) Other Materials.

Contractor shall provide compatible primer, filler and other materials recommended by the manufacturer as needed for the proper installation of the complete surface bonded FRP composite system.

510.03 Construction.

(A) Application.

(1) Surface Preparation.

(a) Columns:

The surface to receive the composite shall be free from fins, sharp edges and protrusions that will cause voids behind the installed casing or that, in the opinion of the Engineer, will damage the fibers. Existing uneven surfaces to receive composite shall be filled with the system epoxy filler or other material approved by the Engineer. Fill large voids in surfaces to receive the composite. Small pinholes or micro-bubbles in the concrete surface or resin do not require special detailing. The contact surfaces shall have no free moisture on them at the time of application. If moisture is present, use the manufacturer suggested wet prime epoxy, if available.

Repair all damaged concrete, spalls, and irregular surfaces to create a flat, or slightly convex, surface. Fill surfaces with thickened epoxy to eliminate air surface voids greater than 1/2 inch in diameter. Well-adhered concrete do not require removal.

Round off sharp and chamfered corners to a round profile by means of grinding or forming with the system's thickened epoxy. Variations in the radius along the vertical edge shall not exceed 1/2 inch for each 12 inches of column height.

(b) Beams and Slabs:

Surfaces shall be prepared for bonding by means of abrasive blasting or grinding to remove existing laitance and expose aggregate to a minimum ICRI CSP-2 concrete surface profile. All contact surfaces shall then be cleaned by hand or compressed air. One prime coat of the manufacturer's epoxy shall be applied and allowed to cure for a minimum of one hour. Prior to the application of the saturated composite fabric, fill any uneven surfaces with the manufacturer's thickened epoxy. Provide anchorage as detailed on construction drawings, if required.

Round off sharp and chamfered corners (to be wrapped around) to a round profile by means of grinding or forming with the system's thickened epoxy. Variations in the radius along the edge shall not exceed 1/2 inch for each 12 inches of length.

(2) Installation.

(a) Preparation work for project: Visit site to ensure that all patch work is complete and cured. Review project specifications in detail.

(b) Verify ambient and concrete temperatures. No work shall proceed if the temperature of the concrete surface is less than 40 degrees F or greater than 100 degrees F or as specified on the epoxy component labels. The ambient temperature and temperature of the components shall be between 40 degrees F and 100 degrees F, unless provisions have been made to ensure components' temperature is maintained within this range or the range specified by the manufacturer.

(c) Prepare the epoxy matrix by combining components at a weight (or volume) ratio specified by the manufacturer. The components of epoxy resin shall be mixed with a mechanical mixer until uniformly mixed, typically 5 minutes at 400 to 600 rpm.

(d) Components that have exceeded their shelf life shall not be used.

(e) Saturation of the fabric shall be performed and monitored according to the manufacturer's specified fiber-epoxy resin ratio. Fabric shall be completely saturated prior to application to contact surface in order to ensure complete impregnation. Saturation shall be supervised and checked by the certified installer. Both the epoxy resin and fabric shall be measured accurately, combined, and applied uniformly at the rates shown on the approved working drawings and per manufacturer's recommendations.

(f) All cutting of fabrics, mixing of epoxy and combination thereof shall take place in a protected area away from critical structure functions and any electrical equipment.

(g) Prepare surfaces as required, including corner preparation.

(h) Remove dust and debris by hand or with compressed air as per specification.

(i) Clean up and protect area adjacent to element where FRP composite is being applied.

(j) Using a roller or trowel, apply one prime coat of epoxy resin to the substrate (2 mil minimun). Allow primer to become tacky to the touch.

(k) Fill any uneven surfaces or recesses with thickened epoxy.

(l) Apply saturated fabric to substrate surface by hand lay-up, using methods that produce a uniform, constant tensile force that is distributed across the entire width of the fabric, and ensure proper orientation of the fabric. Under certain application conditions, the system may be placed entirely by hand methods assuring a uniform, even final appearance. Gaps between composite bands may not exceed 1/2 inch width in the fabric's transverse joint unless otherwise noted. A lap length of at least 6 inches is required at all necessary overlaps in the primary fiber direction of the fabric.

(m) Apply subsequent layers, continuously or spliced, until designed number of layers is achieved per working drawings.

(n) Using a roller or hand pressure, release or roll out entrapped air, and ensure that each individual layer is firmly embedded and adhered to the preceding layer or substrate.

(o) Detail all fabric edges, including termination points and edges, with thickened epoxy.

(p) Finish: All edges and seams must be feathered. Use system as directed by the manufacturer. Finish as specified between 24 and 72 hours after final application of epoxy. If after 72 hours the epoxy is cured, the surface must be roughened by hand sanding or brush blasting, prior to

finishing.

(q) System may incorporate structural fasteners but limitations and detailing must be verified with composite system manufacturer.

(B) Inspection and Testing.

(1) Field Inspection.

(a) The contractor shall monitor the mixing of all epoxy components for proper ratio and adherence to manufacturer's recommendations. Record batch numbers for fabric and epoxy used each day, and note locations of installation. Measure square footage of fabric and volume of epoxy used each day. Complete report and submit to the Engineer and FRP composite system manufacturer.

(b) Provide a Special Inspector trained and certified by the FRP system manufacturer and approved by the Engineer. The Certified Special Inspector shall not be an employee of the Contractor or be financially associated with the Contractor beyond the inspection contract. The Certified Special Inspector shall perform inspections in accordance with this specification and ICC ES AC178.

The Certified Special Inspector shall periodically observe all aspects of preparation, mixing, and application. All FRP composite applied areas shall be inspected, in accordance with the manufacturer's specifications for voids, bubbles, and delaminations. All defective areas shall be repaired as specified in Subsection 510.03(C) "Required Remediation".

(c) The contractor shall provide a report signed by a licensed professional engineer certifying that the installation is acceptable, complete with the testing reports and photographs.

(2) Laboratory Testing.

(a) Sampling.

1. Record lot number of fabric and epoxy resin used, and location of installation. Measure square

footage of fabric and volume of epoxy used each day. Label each sample from each day's production.

2. A "sample batch" shall consist of two 12 inch by 12 inch samples of cured composite. A minimum of two "sample batches" shall be made daily. The two "sample batches" will be taken at appropriate times during the day as to ensure the maximum material deviance in the components of the FRP composite.

(b) Preparation of Samples.

1. Prepare sample on a smooth, flat, level surface covered with polyethylene sheeting, or 16 mil plastic film, prime with epoxy resin. Then place <u>one</u> layer of saturated fabric and apply additional topping of epoxy. Cover with plastic film and squeegee out all bubbles.

2. The Samples shall be stored in a sample box and not moved for a minimum of 48 hours after casting. The prepared, identified samples shall be given to a pre-approved and experienced testing laboratory. The laboratory shall then precondition samples for 48 hours at 140 degrees F before testing.

(c) ASTM D7565 and/or ASTM D3039 – Tension Tests.

1. Testing specimens shall be cut from samples and tested for ultimate tensile strength, tensile modulus and percentage elongation as per ASTM D7565 and/or ASTM D3039 in the longitudinal fiber direction.

2. Test a minimum of 15 percent of all samples as per ICC AC178. If one coupon fails, specimens from the same 12 inch x 12 inch sample will be tested. If these specimens also fail, the other 12 inch x 12 inch sample from the same "sample batch" will be tested. In the extreme case that this sample also fails, the remaining "sample batch" for that day will be tested and appropriate remediation shall be taken to ensure integrity of the system at locations from the failed "sample batch". In addition, 25 percent of the remaining samples shall be tested by the same criteria as per ICC AC178.

3. Testing results shall be made available within 3 weeks of sample submission.

(d) Acceptance Criteria.

1. FRP design values must be lower than the calculated mean determined from the test results received from the ASTM D7565 and/or ASTM D3039 field test specimens. Acceptable minimum values for ultimate tensile strength, tensile modulus, and elongation shall not be below the submitted design values.

2. Any values below the submitted design values are considered unacceptable and will require remediation.

(C) Required Remediation.

(1) Small voids and bubbles on the order of 3 inches in diameter shall be injected or back filled with epoxy.

(2) Voids and delaminations on the order of 6 inches in diameter or an area of 5 inches x 5 inches shall be reported to the Engineer and remediation shall be submitted by the contractor for approval.

(3) In the event that laboratory testing determines a "sample batch" to possess insufficient material properties, remedial measures shall be taken. Any structural member where the installed FRP composite system has material properties determined to be below the minimum specified values, additional layers shall be installed until the composite thickness is increased by the same percentage as the deficiency of the material's tensile modulus. Or any other remediation as directed by the Engineer.

(4) Make good at no cost to the State, any damage to the new or existing structures, property or services caused by the installation and testing of the FRP composite.

(D) Clean Up.

Remove all surplus material, equipment and debris from the site on completion of the work. Leave the site clean.

510.04 Measurement. Externally bonded fiber reinforced polymer (FRP) strengthening system will be paid on a lump sum basis. Measurement for payment will not apply.

510.05 Payment. The Engineer will pay for the accepted pay items listed below at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and in the contract documents.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	**Pay Unit**
FRP Strengthening System for Arch Ribs and Struts	Lump Sum
FRP Strengthening System for Columns	Lump Sum
FRP Strengthening System for Transverse and Longitudinal Beams	Lump Sum
FRP Strengthening System for Deck Slab Soffit	Lump Sum"

END OF SECTION 510

PROPOSAL SCHEDULE					
ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
202.1000	Removal of Concrete and Wood Debris	F.A.	F.A.	F.A.	$ 10,000
209.0100	Installation, Maintenance, Monitoring, and Removal of BMP	L.S.	L.S.	L.S.	$
209.0200	Additional Water Pollution, Dust, and Erosion Control	F.A.	F.A.	F.A.	$ 50,000
509.1000	Repair Concrete Delaminations and Spalls	4,400	S.F.	$	$
509.2000	Repair Concrete Cracks by Epoxy Injection	1,100	L.F.	$	$
509.3000	Reinforcing Splices	1,200	LB.	$	$
509.4000	Concrete Anti-Corrosive Coating (Migrating Corrosion Inhibitor)	L.S.	L.S.	L.S.	$
510.1000	FRP Strengthening System for Arch Ribs and Struts	L.S.	L.S.	L.S.	$
510.2000	FRP Strengthening System for Columns	L.S.	L.S.	L.S.	$
510.3000	FRP Strengthening System for Transverse and Longitudinal Beams	L.S.	L.S.	L.S.	$
510.4000	FRP Strengthening System for Deck Slab Soffit	L.S.	L.S.	L.S.	$
645.0100	Traffic Control	L.S.	L.S.	L.S.	$
645.0200	Additional Police Officers, Additional Traffic Control Devices and Advertisement	F.A.	F.A.	F.A.	$ 50,000
648.0100	Field-Posted Drawings	L.S.	L.S.	L.S.	$
694.1000	Clean and Paint Concrete Bridge and FRP Wrapped Concrete Surfaces	L.S.	L.S.	L.S.	$

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
699.1000	Mobilization (Not to Exceed 6 Percent of the Sum of All Items Excluding the Bid Price of this Item)	L.S.	L.S.	L.S.	$_____

Sum of All Items ..... $_____

NOTE: Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.

February 20, 2013

PRE-BID MEETING MINUTES

Subject: Kalanianaole Highway, Emergency Repair of Ihiihilauakea Bridge
Project No. 72B-01-13M

Location: HDOT HWY-DD conference room, Kapolei

Meeting Date: February 15, 2013, 1:30 p.m.

Attendees: See attendance list

A. Meeting Notes:

1. A copy of the meeting agenda was distributed to all attendees. Sign-in sheet also circulated. Meeting started at 1:30 p.m.

2. Attendees introduced themselves.

3. Nagamine Okawa Engineers Inc. (NOEI) opened the meeting with a general remark: Anything said at this meeting is for clarification only; the bid documents shall govern over anything said today. Any discrepancies shall be clarified by addendum.

4. NOEI provided brief description of scope of work and overview of project.

   a. Project includes repair of concrete cracks and spalls in existing concrete bridge structure, installation of fiberwrap FRP reinforcing around concrete bridge structure, painting of concrete bridge, and temporary traffic control.

   b. All work shall be done during daytime hours. Night work will not be permitted.

   c. Traffic requirements – One lane must remain open at all times. One-lane closures will be allowed only between 8:30 A.M. and 6:00 P.M., Monday through Friday, except holidays. "Lanai Lookout" parking lot shall remain open to the public during construction.

   d. Contractor shall submit BMP plans to the Engineer at least 21 calendar days prior to commencing work.

   e. Construction materials, scaffolding, shoring, etc shall not be placed below estimated high-water mark.

5. Peter Chan of HWY-DD stated that according to the Department of Health, a noise variance will be needed for work extending beyond the hours of 7:00 a.m. to 6:00 p.m.

6. Triton Marine Construction Corp. commented about the high water mark shown on plans, but no specific elevation is indicated.

   See Addendum No. 1 for clarification.

7. Triton Marine Construction Corp. asked if any soil data of existing bridge site is available.

   No soil data is available.

8. Triton Marine Construction Corp. commented on Special Provisions Section 510 Fiberwrap; specs indicate a "sole source" for product and certified applicator, and that the manufacturer (Fyfe) will not certify contractors in Hawaii.

   See Addendum No. 1 for clarification.

9. Triton Marine Construction Corp. commented about existing concrete debris in channel below bridge. Will contractor be responsible this?

   Yes. A line item for removal of the existing concrete and wood debris will be added to the proposal schedule.

10. Triton Marine Construction Corp. commented that if a sole source product is allowed, bids will not be competitive.

    An approved equal product is being considered. See Addendum No. 1 for clarification.

11. Ideal Construction Corp. commented that if a sole source product is used by contractor and the product doesn't perform, who will be responsible?

    An approved equal product is being considered. See Addendum No. 1 for clarification.

12. Meeting adjourned at 1:55 p.m.

B. Prospective Bidder, Triton Marine Construction Corp. had emailed a list of questions on February 19, 2013. Questions and answers are as follows:

1. Section 509 - Concrete Rehabilitation page 509-10a (e). Please clarify epoxy bonding requirements. This paragraph states at "At contractor's option, for polymer modified concrete that will be formed and poured, bonding compound may be omitted if acceptable to the contractor and subject to Engineer's approval." Bonding compounds can be problematic with formwork which can cause loss of bond due to the timing of material placement. Application of bonding compound with formwork can be a significant impact to cost so we are requesting that a definitive answer be given prebid regarding omitting the bonding compound.

   Bid accordingly.

2. Please confirm that under section 510 "Externally bonded Fiber Reinforced Polymer (FRP) Strengthening Systems" is not intended to be sole sourced to Fyfe Co. Tyco only and that other manufacturers will be approved post bid. It is our understanding that Fyfe has only one approved applicator licensed in the State which significantly limits the competitive bid process.

   See Addendum No. 1 for clarification.

3. Is the application of the FRP system for this project designed for structural/seismic upgrade to the original structure or is it to prevent further issues with the concrete deterioration?

   FRP system is designed for structural repairs and supplementary concrete protection.

4. With the extent of work required to complete this project the 150 calendar days given in the contract appears to be too short of duration given that the concrete repairs will have to be done in stages even with full shoring of the bridge. Can the duration be extended?

   Bid accordingly.

5. Will NTP be based on approval of the BMP plan? If not, what is the estimated NTP date after award?

   NTP will not be based on approval of BMP plan. No estimated NTP date will be provided at this time. It will be issued when all conditions are met after bid opening.

6. The plans indicate removing concrete beyond the edge of the spall repair areas an additional ½" beyond the spall repair area while 509-9a (2) (a) indicates 2". Please indicate which criteria is correct?

   Plans shall govern.

7. Who will be responsible for removing the existing concrete rail sections and spalled concrete pieces that are present on the ground below the bridge?

   Contractor will be responsible for removing existing concrete and wood debris. A line item for removal of the existing concrete and wood debris will be added to the proposal schedule.

8. Sheet S-4 note 7 under repair notes indicates water tight forms. Water tight would also be near air tight which does not allow for good filling and consolidation of repair materials. Suggest to revise the note that all cementitious materials be contained and not allowed to escape onto the ground.

No revision. Bid accordingly.

9. Are any soils borings or geotechnical information available to assist in the design of the shoring system?

No.

10. Please confirm slurry coat will only be required for areas less than 2 square feet where hand patching is required.

Bid accordingly.

11. Section 509-17a (3) Traffic Control please clarify which dictates opening time "the curing shall not be less than 3 calendar days" or minimum compressive strength of 4,000 PSI.

Both requirements must be met per special provisions.

KALANIANAOLE HIGHWAY
EMERGENCY REPAIRS OF IHIIHILAUAKEA BRIDGE
PROJECT NO. 72B-01-13M

SIGN IN SHEET

Date: 2/15/13, 1:30pm

	Name	Phone No.	E-mail Address
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