STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 2

FOR

INTERSTATE ROUTE H-1
EXTENSION AND REPAIR OF
SCHOOL STREET ON-RAMP RETAINING WALL
PROJECT NO. H1I-01-08

AND

INTERSTATE ROUTE H-1
DRAINAGE IMPROVEMENTS
VICINITY OF SCHOOL STREET OFF-RAMP
PROJECT NO. H1I-01-09

DISTRICT OF HONOLULU
ISLAND OF OAHU

FY 2009

Amend the bid documents as follows:

A. **SPECIAL PROVISIONS**

1. Replace pages 695-1a to 695-6a, dated 3/2/09 with the attached pages 695-1a to 695-6a, dated r4/15/09.

B. **PROPOSAL SCHEDULE**

1. Replace pages P-13 to P-18 dated 3/17/09 with the attached pages P-13 to P-18 dated r4/15/09.

Please acknowledge receipt of this Addendum No. 2 by recording the date of its receipt in the space provided on Page P-4 of the Proposal.

BRENNON T. MORIOKA, Ph.D, P.E.
Director of Transportation

Make the following Section a part of the Standard Specifications:

"SECTION 695 - MOVEABLE STEEL BARRIER AND INERTIAL BARRIER SYSTEM

695.01 Description. This section is for furnishing, hauling, installing, maintaining, relocating, and subsequently removing moveable steel barriers and inertial barrel systems according to the contract documents.

695.02 Materials.

(A) Moveable Steel Barriers. Materials shall meet the requirements specified in the following subsections of Division 700 - Materials.

Structural Steel	713.01
Standard Fasteners	718.01
Reflector Marker	750.07
Preformed Pavement Marking Tape	755.04

(B) Inertial Barrier Systems (Portable Barrier End Treatment).

(1) Container. The Inertial Barrier shall consist of modules in 200, 400, 700, 1400, and 2100 lbs. sizes. 200, 400, 700 and 1400 lbs. modules shall consist of a container molded in one piece with a minimum capacity of 21 cubic feet. The material shall be durable, weatherproof, and shall be formulated to resist deterioration from ultraviolet rays. The color shall be yellow. This model must be of continuous molded construction and be nestable. The modules shall be designed and manufactured from a frangible polyethylene material which shall shatter upon impact to permit dispersion of the sand mass container within.

(2) Lid. Each module shall have a black lid which locks securely over the top lip of the outer container. Material shall be durable, weatherproof, and shall be formulated to resist deterioration from ultraviolet rays.

(3) Insert. All 200, 400 and 700 lbs. modules will require a cone-shaped supporting insert used to support various sand masses. Cone inserts shall be of one-piece molded construction and be nestable.

(4) Sand. Sand placed into these modules should be washed concrete sand conforming to ASTM-C-33 or equal.

Each Inertial Barrier System array shall be configured to provide a satisfactory average rate of deceleration (8 g's maximum preferred for each row) for errant vehicles in the weight ranges of 1810 to 4410 lbs. The inertial barrier system shall meet the requirements of NCHRP 350 for Test Level 3 for non-redirective gating crash cushions. For impact vehicles weighing between 1810 and 4410 lbs. and traveling at speeds of up to 62 mph, the maximum 24-inch occupant fail space velocity shall be less than 39 ft/sec and the vehicles' highest 10 millisecond occupants' ride-down acceleration shall be less than 20 g's.

The center of gravity of each properly filled module shall be at a height which will aid in controlling the pitch of standard passenger vehicles.

The components of the modules shall interface to prevent leakage of sand contained therein. The interface shall, however, permit drainage of excess water contained within the sand mass.

695.03 Construction Requirements.

(A) Moveable Steel Barriers.

(1) Fabrication. Moveable steel barriers shall be Armor Guard Barrier/ Safeguard Link system as manufactured by Barrier Systems, Inc., Vulcan Barrier as manufactured by Energy Absorption Systems, Inc., or approved equal.

(a) Barrier Design. The moveable steel barrier system shall meet NCHRP-350 Test Level 2 and Test Level 3 test requirements as a longitudinal redirecting barrier. The barrier system shall be designed for quick deployment and reconfiguration.

The nominal length of each individual barrier unit would be either 4.1 meters (13.5 feet), or 8.5 meters (28 feet).

Each barrier unit shall be equipped with retractable wheeled jacks designed to be deployed using a hand crank.

(e) Accessories. Furnish and install one RM-2 reflector marker on top of the moveable barrier (not RM-3 as shown on the Standard Plan), a longitudinal 4-inch by 20 feet permanent preformed pavement marking tape, Type I (color to match appropriate roadway pavement stripe) on the sloped side of the barrier facing traffic, and a steady burn amber lamp on each barrier unit.

Furnish and install Type II Barricade with a steady burn amber lamp on each barricade and in accordance with MUTCD Chapter 6.

(2) Installation. Assemble and Install the moveable steel barrier system in accordance with the manufacturer's recommendations. Erect all units as shown on the plans or as specified by the Engineer. Set the units in a vertical position, closely following the roadway grade.

Minimum deployment lengths of unanchored installation of moveable steel barrier system: 34 meters (112 feet) for TL-2, and 68 meters (223 feet) for TL-3.

Contractor shall not leave barrier ends exposed to traffic, and shall provide treatment that complies with NCHRP 350 Test Level 3 criteria.

Relocate any units or existing barriers during construction at the locations shown in the contract documents or as ordered by the Engineer.

Contractor shall be responsible for maintaining moveable steel barrier installation, and promptly replace any damaged barrier units as directed by the Engineer at no additional cost to the State.

Contractor shall be responsible for the safe keeping of moveable steel barrier units until they are removed from the project.

(3) Type II Barricades. Furnish and install Type II Barricades with lamp. Spacing and position shall comply with part 6 of the MUTCD Typical Application 5.

(B) Inertial Barrier Systems (Portable Barrier End Treatment).

(1) The portable barrier end treatment shall be a non-redirective, energy-absorbing terminal providing impact protection for design speeds up to 43 mph. It shall meet NCHRP 350, Test Level 2 criteria for Non-Redirective Crash Cushions, as accepted by the Federal Highways Administration (FHWA). Design speeds above 43 mph (up to 62 mph) shall meet NCHRP 350, Test Level 3 criteria for Non-Redirective Crash Cushions, as accepted by FHWA. Submit a brochure of the product to be used for acceptance by the Engineer prior to ordering the end treatment.

(2) The portable barrier end treatment shall be designed for easy attachment to and removal from the end of the barrier. The nose of the system shall be equipped with a chevron sign, a crash

cushion object marker (CCOM) which shall be reversible to match the corresponding traffic direction.

(3) Installation and use of the end treatment must be consistent with shy-line and placement guidelines specified in the current edition of the AASHTO Roadside Design Guide.

(4) Provide, install, and maintain a NCHRP 350 compliant end treatment compatible with the barrier units. The end treatment shall be attached and installed in compliance with the manufacturers instructions. If requested by the Engineer, provide three copies of the maintenance and operational manual for the end treatments along with an instructional class for State Maintenance personnel on the installation and removal of the end treatment.

(5) Haul the portable barrier end treatment to the project site. Prepare the beds and set the portable barrier end treatment at a location shown in the contract documents or as directed by the Engineer.

(6) Furnish, install, and maintain attachment for connecting the portable barrier end treatment to the barrier unit.

(7) Furnish and install one crash cushion object marker (CCOM) on each portable barrier end treatment in accordance with the contract documents.

(8) Relocate the portable barrier end treatment during construction at the locations shown in the contract documents or as ordered by the Engineer.

(9) Upon completion of the work, clean, repair, remove, haul, and store the portable barrier end treatment at the location shown in the contract documents or as ordered by the Engineer. If the final designation is not available when the units are ready to be removed, haul the units to an interim location at no increase in contract price or contract time.

The cleaning and repair of the portable barrier end treatments shall be performed regardless of cause, such as 'wear and tear' or improper handling by the Contractor during use. Repair shall include replacement of all damaged portions of the portable barrier end treatment back to its original configuration. A portable barrier end treatment damaged that, in the judgment of the Engineer, is considered irreparable shall be replaced with a new

portable barrier end treatment at no increase in contract price or contract time. All portable barrier end treatments will be inspected and found acceptable by the Engineer before returning them to the area designated in the contract documents or as directed by the Engineer.

(10) The portable barrier end treatment shall become the property of the State after project completion.

(C) Pavement Striping and Markers for Lane Shifting.

Furnish and install pavement striping and markings according to Section 629 - Pavement Markings, Subsection 629.03 (C). Do not use temporary pavement striping and markers. Striping shall be done in accordance with the contract documents or as directed by the Engineer. If no striping plan is provided, submit striping plan for approval 14 days prior to the setting of the units. Upon completion of the contract work, remove the lane shift striping and markers, and restore original striping and markers in accordance with the contract documents or as directed by the Engineer.

695.04 Method of Measurement. The Engineer will measure Contractor-furnished moveable steel barrier per linear-foot-day. The daily measurement of moveable steel barrier deployed will be determined by using the effective length of an individual steel barrier unit and multiplies by the number of similar units actually installed.

The Engineer will not measure the inertial barrier system.

The Engineer will not measure installing, maintaining, and subsequently removing lane shift pavement striping and markers for payment.

695.05 Basis of Payment. The Engineer will pay for the accepted Contractor-furnished moveable steel barriers at the contract unit price per linear-foot-day. The price includes full compensation for work prescribed in this section and the contract documents.

The Engineer will not pay separately for installing, maintaining, relocating, and subsequently removing the moveable steel barriers. The price includes full compensation for preparing beds; hauling and setting moveable steel barriers; installing connector pins; maintaining reflector markers, lamps, and permanent preformed pavement marking tape; relocating portable steel barriers during construction; and furnishing labor, materials, tools, equipment and incidentals necessary to complete the work.

The Engineer will pay for the accepted inertial barrier system at the contract lump sum price complete in place. The price includes full compensation for work prescribed in this section and the contract documents.

The Engineer will not pay separately for installing, maintaining, relocating, and subsequently removing the inertial barrier system. The price includes full compensation for submitting a list of materials and equipment to be incorporated in the work; grading and compacting the ground; furnishing, assembling, and installing an inertial barrier system; relocating inertial barrier system to locations specified in the contract; filling each installed inertial barrier module with sand; removal and disposal of sand; cleaning and hauling the empty modules to locations on island of Oahu as directed by the engineer upon completion of the project, and furnishing labor, materials, tools, equipment and incidentals necessary to complete the work.

The Engineer will not pay separately the pavement striping and markers for lane shifting. The Engineer will consider the cost for the lane shift pavement striping and markers included in the contract price for moveable steel barrier. The price includes full compensation for submitting the striping plans; removing the existing pavement striping and markers; installing the lane shift pavement striping and markers; removing the lane shift striping and markers; and restore original striping and markers according to the contract or as directed by the Engineer; and furnishing labor, materials, tools, equipment and incidentals necessary to complete the work.

The Engineer will make payment under:

Moveable Steel Barrier (with manual jack)	Linear-Foot-Day
Inertial Barrier System	Lump Sum

The Engineer will make partial payments as follows:

(1) Pay 40% of the amount bid when the barrier are furnished and delivered to the jobsite and prepared the ground for installation.

(2) Pay 40% of the amount bid when the barrier are assembled and installed, relocated and maintained during construction, and replaced damaged barriers.

(3) Pay the remainder of the contract amount upon removal and delivery of the barriers and modules after completion of the project or as directed by the Engineer."

END OF SECTION 695

PROPOSAL SCHEDULE FOR RETAINING WALL WORK					
ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
201.0100	Clearing and Grubbing	L.S.	L.S.	L.S.	$_____
201.0200	Tree Pruning	F.A.	F.A.	F.A.	$ 30,000.00
201.0300	Certified Arborist	F.A.	F.A.	F.A.	$ 15,000.00
202.0100	Removal of Existing Retaining Wall (partial)	L.S.	L.S.	L.S.	$_____
205.0100	Structure Excavation for Existing Retaining Wall	L.S.	L.S.	L.S.	$_____
205.0200	Structure Excavation for New Retaining Wall	L.S.	L.S.	L.S.	$_____
205.0300	Structure Backfill for Existing Retaining Wall	L.S.	L.S.	L.S.	$_____
205.0400	Structure Backfill for New Retaining Wall	L.S.	L.S.	L.S.	$_____
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.	$ 50,000.00
401.0100	HMA Pavement, Mix No. IV	L.S.	L.S.	L.S.	$_____
503.0100	Concrete for Existing Retaining Walls and Tiebacks	L.S.	L.S.	L.S.	$_____

PROPOSAL SCHEDULE FOR
RETAINING WALL WORK

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
503.0200	Concrete for New Retaining Walls and Footings	L.S.	L.S.	L.S.	$_____
602.0100	Reinforcing Steel for Existing Wall Modifications	L.S.	L.S.	L.S.	$_____
602.0200	Reinforcing Steel for New Retaining Wall	L.S.	L.S.	L.S.	$_____
616.0100	Irrigation System	L.S.	L.S.	L.S.	$_____
619.0100	Bermuda Grass [Cynodon Dactylon] Hydroseed	L.S.	L.S.	L.S.	$_____
622.0100	Remove Existing Highway Lighting System	L.S.	L.S.	L.S.	$_____
622.0200	Highway Lighting System	L.S.	L.S.	L.S.	$_____
631.0100	Regulatory Sign (10 Square Feet or Less) with Steel Post	L.S.	L.S.	L.S.	$_____
631.0200	Regulatory Sign (10 Square Feet or Less) without Steel Post	L.S.	L.S.	L.S.	$_____
631.0300	Warning Sign (10 Square Feet or Less) with Steel Post	L.S.	L.S.	L.S.	$_____
643.0100	Maintenance of Existing Landscape Areas	F.A.	F.A.	F.A.	$ 50,000.00
645.0100	Traffic Control	L.S.	L.S.	L.S.	$_____

PROPOSAL SCHEDULE FOR
RETAINING WALL WORK

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
645.0200	Additional Police Officers, Additional Traffic Control Devices, and Advertisement	F.A.	F.A.	F.A.	$ 50,000.00
648.0100	Field-Posted Drawings for Retaining Wall Repair Work	L.S.	L.S.	L.S.	$_____
656.0100	Drilling Holes and Installing Dowel Reinforcing Bars for Existing Retaining Wall	L.S.	L.S.	L.S.	$_____
656.0200	Drilling Holes and Installing Dowel Reinforcing Bars for Existing Retaining Wall Footing	L.S.	L.S.	L.S.	$_____
681.0100	Furnishing Specialty Equipment for Tieback Work	L.S.	L.S.	L.S.	$_____
681.0200	Tiebacks	L.S.	L.S.	L.S.	$_____
681.0300	Reinstallation of Tiebacks due to Grout Loss	F.A.	F.A.	F.A.	$ 25,000.00
681.0400	Reinstallation of Tiebacks due to Additional Tieback Performance Tests	F.A.	F.A.	F.A.	$ 25,000.00
695.0100	Moveable Steel Barrier (with Manual Jack)	107,100	Linear-Unit-Day	$_____	$_____
695.0200	Inertial Barrier System	L.S.	L.S.	L.S.	$_____
696.0100	Maintenance of Trailers	F.A.	F.A.	F.A.	$ 30,000.00

PROPOSAL SCHEDULE FOR RETAINING WALL WORK					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
699.1000	Mobilization (Not to Exceed 10 Percent of the Sum of All Items Excluding the Bid Price of this Item, and Force Account Items)	L.S.	L.S.	L.S.	$_____
Sum of All Retaining Wall Work Items.....					$ _____
NOTE: Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.					

PROPOSAL SCHEDULE FOR

DRAINAGE IMPROVEMENTS WORK

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
206.2000	Excavation for 24" Culvert	L.S.	L.S.	L.S.	$_____
209.0101	Installation, Maintenance, Monitoring, and Removal of BMP	L.S.	L.S.	L.S.	$_____
209.0201	Additional Water Pollution, Dust, and Erosion Control	F.A.	F.A.	F.A.	$ 20,000.00
312.0100	Hot Mix Glassphalt Base Course	L.S.	L.S.	L.S.	$_____
401.0101	HMA Pavement, Mix No. IV	L.S.	L.S.	L.S.	$_____
603.0010	Bed Course Material for Culvert	L.S.	L.S.	L.S.	$_____
603.0100	24-Inch Reinforced Concrete Pipe, Class III, or 24-Inch High Density Polyethylene Pipe, Type S	L.S.	L.S.	L.S.	$_____
604.0010	Type "2A-9" Grated Drop Inlet, 4.00 feet to 4.99 feet	2	Each	$_____	$_____
604.0020	Pipe Connection to Existing Drainage Structure	4	Each	$_____	$_____
605.1000	6-Inch Underdrain	L.S.	L.S.	L.S.	$_____
643.0101	Maintenance of Existing Landscape Areas	F.A.	F.A.	F.A.	$ 5,000.00
645.0101	Traffic Control	L.S.	L.S.	L.S.	$_____

PROPOSAL SCHEDULE FOR

DRAINAGE IMPROVEMENTS WORK

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
645.0201	Additional Police Officers, Additional Traffic Control Devices, and Advertisement	F.A.	F.A.	F.A.	$ 7,000.00
648.0101	Field-Posted Drawings	L.S.	L.S.	L.S.	$_____
694.0100	State Furnished Portable Concrete Barrier	40	Each	$_____	$_____
694.0200	Inertial Barrier System	L.S.	L.S.	L.S.	$_____
699.1001	Mobilization (Not to Exceed 10 Percent of the Sum of All Items Excluding the Bid Price of this Item, and Force Account Items)	L.S.	L.S.	L.S.	$_____

Sum of All Drainage Improvements Work Items ..... $ _____

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

Total (Sum of All Retaining Wall Work and Drainage Improvements Work Items to be used for comparison)..... $ _____

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