STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1

FOR

KAPULE HIGHWAY PAVEMENT REPAIR

HALAU STREET TO AHUKINI ROAD

PROJECT NO. 51B-01-17M

DISTRICT OF LIHUE

ISLAND OF KAUAI

2017

Amend the Bid Documents as follows:

A. SPECIAL PROVISIONS

a. Replace Table of Contents dated 1/31/17 with the attached Table of Contents dated r4/18/17.

b. Replace Section 411 – Portland Cement Concrete Pavement dated r1/31/17 with the attached Section 411 – Portland Cement Concrete Pavement dated r4/18/17.

B. PLANS

a. Replace Plan Sheet Nos. 9, 13 & 19 with the attached Plan Sheet Nos. ADD. 9, ADD. 13, & ADD. 19.

Attached are the "Minutes of the Pre-Bid Meeting" and Pre-Bid Meeting Attendance Sheet 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.

FORD N. FUCHIGAMI
Director of Transportation

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END OF TABLE OF CONTENTS

Amend **SECTION 411 – Portland Cement Concrete Pavement** to read as follow:

"**SECTION 411 - PORTLAND CEMENT CONCRETE PAVEMENT**

411.01 Description. This section describes constructing portland cement concrete (PCC) pavement, with or without reinforcement, on a prepared surface.

411.02 Materials.

Structural Concrete	601
Joint Filler	705.01
Joint Sealer	705.04
Reinforcing Steel	709.01
Curing Materials	711.01

411.03 Construction.

(A) Paving Plan. Submit paving plan no later than 30 days after contract award. Paving plan shall be complete and provide all information required. No partial submittal, except as noted, will be accepted. Partial submittals will be returned without review. The Engineer will review the paving plan in accordance with Subsection 105.04 – Review and Acceptance Process. Obtain acceptance of paving plan from the Engineer before starting any paving work including but not limited to any roadway excavation and subbase preparation and installation. Installation plan shall include but not be limited to the following:

(1) Type, make, model and number of all equipment to be used for placing, finishing, curing, saw cutting, and diamond grinding. Include a list of the equipment to be used and the number of equipment to be held in reserve in anticipation of breakdown.

(2) Provide details of:

i. Traffic control, methods to protect the public.

ii. Repair of non-compliant areas

iii. PCC concrete placement, including proposed operational procedures, subgrade protection, delivery or pumping, leveling, finishing methods, etc.

iv. How weather conditions detrimental to the PCC will be addressed, e.g., rain, hot weather, wind, humidity, etc., shall be monitored and addressed. Include assumed temperature of concrete to be used in initial calculation of evaporation rate.

v. Curing means and methods, equipment and materials.

vi. Saw cutting of PCC, list equipment, number of equipment, manpower, how it will be determined when to start cutting

vii. Diamond grinding, control of slurry and debris. Disposal method and location.

viii. Construction operation sequence and location of panels/blocks and order they will be constructed in.

(3) Saw cutting pattern plan.

(4) List of ACI Certified Flatwork Finisher and Technicians and a copy of their certification.

(5) Testing laboratory to be used for all testing, testing methods to be provided, qualifications of technician and laboratory. If a commercial AMRL certified testing laboratory or technician is not readily available on the island where the work is taking place the Engineer may allow a non-certified AMRL testing laboratory or technician to perform the tests. Provide documentation that an AMRL laboratory does not exist on the island and submit qualifications of testing laboratory or technician.

(6) Proposed concrete mix design, including expected strengths at 24-hours, 3, 7, and 28 days. If the opening of pavement is to be scheduled for a time period other than the previously stated time period submit test for that day to ensure the concrete will meet requirements. Submit test results of both a trial mix conducted by State-accepted testing laboratory using methods specified in Subsection 601.03(B) – Design and Designation of Concrete.

The Engineer will review the paving plan for conformance with the contract documents. Within 30 days after the paving plan receipt, the Engineer will notify the Contractor if the paving plan is acceptable or if additional information is required, or there is a need for clarification, and if applicable, changes necessary to meet requirements of the contract documents. The Engineer may reject parts of or the entire paving plan if found unacceptable. Resubmit entire paving plan with changes for

re-evaluation within 30 days. The Engineer will have the same amount of time for the review of each resubmitted paving plan as it did for the original submittal. Submit revised paving plan until it is acceptable to the Engineer. Any delay due to the paving plan not being acceptable is solely a Contractor's delay and no additional compensation or contract time will be granted. However, if the Engineer's review and acceptance of the paving plan exceeds the 30 days allowed for the review of each version of the paving plan, additional time and compensation may be claimed for. Procedural acceptance given by the Engineer is subject to trial in the field.

(B) Equipment.

(1) Batching Plant and Mixers. Batching plant and mixers shall conform to Section 601 - Structural Concrete.

(2) Hauling Equipment. Hauling equipment shall conform to Section 601 - Structural Concrete.

(3) Finishing Equipment.

Vibrators. Vibrators for full-width concrete consolidation may be either internal-type, with immersed tube or multiple spuds, or surface pan type. Vibrators shall be attached to spreader or finishing machine, or shall be mounted on separate carriage. Vibrators shall not come in contact with reinforcement, load transfer devices, subgrade, and side forms. Vibrators shall not be dragged horizontally through the concrete, when moved they shall be lifted out of the concrete and placed perpendicular to the concrete surface.

Furnish vibrators that operate at frequencies not less than the following: 3,500 impulses per minute for surface vibrators; and 5,000 impulses per minute for internal and hand vibrators. Furnish tachometer for measuring and indicating vibration frequencies along with a test certifying to the tachometer's accuracy.

(4) Concrete Saw. If sawed joints are specified or elected by the Contractor, furnish power-driven concrete saws sufficient in number, power, and type of blade to cut joints. Provide at least one back-up saw and replacement blades during concrete sawing operations. Equip saws with blade guards and guides or devices to control alignment and depth. Remove all cuttings, slurry, and other by-products of the sawing operations immediately from the sawed surface and from the work site.

(C) Preparing the Proper Grade. Trim beyond edges of proposed

concrete pavement to accommodate forms and slip-form paving equipment. Fill and compact areas that are below established grade with subgrade or base course material, in lifts up to 1/2 inch, for widths of 18 inches on both sides of form base. Tamp and trim areas above established grade, as necessary.

(D) Setting Forms. Adjacent existing pavement shall serve as form and guide during placement of concrete. At least one working day prior to placing concrete, notify the Engineer that forms are ready for inspection.

(E) Conditioning of Subgrade or Base Course. Unless waterproof cover material is indicated in the contract documents, keep subgrade and base course uniformly moist before placing concrete.

(F) Handling, Measuring, and Batching Materials. Handle, measure, and batch materials in accordance with Section 601 - Structural Concrete.

(G) Mixing Concrete. Mix concrete in accordance with Section 601 - Structural Concrete.

(H) Mixing Limitations and Water Supply. Provide for adequate natural or artificial lighting when mixing, placing, and finishing concrete.

Place mixed concrete only when concrete temperature is between 50 and 90 degrees F. Use Plastic Shrinkage Evaporation Chart ACI 305 as a guide to determine if additional precautions should be taken to prevent shrinkage cracks. Approximately 30 minutes prior to the scheduled start of concrete placement, at the project site and the location of concrete placement measure the ambient air temperature, relative humidity and wind velocity with industrial grade weather monitoring instruments to determine the on-site evaporation rate. Compute the evaporation rate by using the nomograph in the 305R Hot Weather Concreting or by using an evaporation rate calculator reviewed and accepted by the Engineer. The temperature of the concrete used in the initial calculation of the evaporation rate shall be the accepted value stated in the paving plan until sufficient data is obtained by current on-site testing to calculate a new value based on on-going pours. If the evaporation is, or is likely to become 0.1 $lb/ft^2/hr$ or greater, employ measures to prevent moisture loss such as but not limited to the application of evaporation retarder, application of supplemental moisture by fogging or reduction of the concrete temperature during batching, reduction of wind velocity or other means accepted by the Engineer that were included in the paving plan. Evaporation retarder shall be diluted at half the rate of the manufacturer's recommendation and shall not be used to finish concrete in the same manner that water would be, i.e., as a wetting agent, sprinkled on the concrete surface and then floated or toweled. Sprinkling of water onto the concrete surface is not allowed. During the placement of the concrete recalculate evaporation rate every 15 minutes using new real-time data

including actual temperature of concrete being placed. Submit all data and calculations with a copy of the nomograph used to the Engineer within 24 hours or next working day. If an evaporation retarder's use is a mandatory part of the Contractor's accepted paving plan, the monitoring of the weather and concrete conditions and the use of the nomograph may have its frequency reduced to one test every 45 minutes provided, in the opinion of the Engineer, the application successfully prevented cracks in the UTW. Monitoring may be increased up to the required frequency again by the Engineer if directed.

Before placing concrete pavement, provide adequate supply of water for entire work period. Inadequate water supply will be sufficient cause for delaying or stopping mixing operations. If there is a water supply deficiency, give first water-use priority to curing concrete already placed before using water for mixing concrete.

(l) Placing, Consolidating, and Shaping Concrete.

Make advance arrangements for preventing delay in concrete delivery and placement. An interval of more than 45 minutes between placement of two consecutive batches or loads shall constitute cause for stopping paving operations and requiring construction joint to be placed, at no increase in contract price or contract time, at location and of the type ordered by the Engineer. Concrete not placed monolithically at the design thickness, unless specifically allowed by the contract documents, is defective work and shall be removed.

Prior to placing concrete, demonstrate proper adjustment of screeds, floats, slip-form pavers, or any other equipment used to level the concrete to its finish grade by measurements from grade stakes driven to known elevations or the accepted grade controls. Placement of concrete shall not start until this is done. Demonstrate satisfactory operation and adjustments of propulsion and control equipment, including pre-erected grade and alignment lines, by running slip-form pavers and finishing machines over 500-foot length of prepared subgrade or base course with propulsion and control equipment fully operational.

Unless otherwise indicated in the contract documents, construct pavement in full-lane widths separated by longitudinal weakened plane joints, or monolithically in multiples of full-lane widths, with longitudinal weakened plane joints at each traffic lane line. Deposit concrete with minimum of handling. Spread concrete uniformly over entire area between forms, without segregation, using mechanical spreader. Where hand methods are necessary due to pavement design, equipment breakdown, or other factors, use shovels, not rakes, for hand spreading. Place concrete continuously

between transverse joints without using intermediate bulkheads. Prohibit workers from walking in concrete with boots or shoes coated with earth or foreign substances.

Improperly proportioned concrete will be rejected. Remove and dispose of concrete rejected by the Engineer in accordance with Subsection 201.03(F) - Removal and Disposal of Material, at no increase in contract price or contract time.

Spread, consolidate, and shape concrete so that completed pavement will conform to thickness and cross-sectional requirements indicated in the contract documents.

Where concrete is to be placed adjacent to previously constructed pavement, keep mechanical equipment off previously constructed pavement until that concrete pavement has attained flexural strength of not less than 550 pounds per square inch when tested in accordance with AASHTO T 97.

Where concrete is being placed adjacent to existing pavement, provide that part of equipment supported on existing pavement, with protective pads on crawler tracks or rubber tired wheels; and offset bearing surface to run a sufficient distance from pavement edge to avoid breaking or cracking that edge.

(J) Test Specimens. Furnish concrete necessary for casting test beams and cylinders and for testing air and slump. Unless otherwise indicated in the contract documents, furnish, maintain, and clean beams or cylinder molds, or both. Beams or cylinder molds, or both shall conform to AASHTO T 23. Cure beams, as specified for pavement, in accordance with AASHTO T 23. For early opening to traffic, cure flexural test specimens at same time and in same manner as pavement.

Additional flexural strength test specimens will be required due to concrete placement conditions or to determine concrete strength where early opening of pavement to traffic is dependent on concrete strength test results.

(K) Striking-Off Concrete. After placement, strike off concrete to cross section indicated in the contract documents.

(L) Joints. Construct joint faces normal to pavement surface, as indicated in the contract documents. Use chalk line, string line, sawing template, or other methods to provide true joint alignment. Prior to contract acceptance, maintain joints free of soil, gravel, concrete or asphalt mix, and other foreign material except filler material.

Where sawing method is used to cut pavement grooves, use saw conforming to Subsection 411.03(B)(4) - Concrete Saw. Saw joints before

uncontrolled shrinkage cracking occurs, but only after concrete has hardened sufficiently to prevent excessive tearing or raveling, or both during sawing operations. Determining concrete readiness for sawing transverse contraction and longitudinal joints in accordance with requirements specified herein shall be the Contractor's responsibility. Cut grooves to minimum width possible for type of saw used, but limit groove width to 0.02 foot.

Once sawing has commenced for any day's concrete placement, continue sawing for 12 hours after placement. Should sawing fail to be completed within 12 hours of concrete placement, limit subsequent concrete placements to quantities that can be sawed in 12 hours. Restore curing membrane disturbed during sawing operations by spraying disturbed areas with additional curing compound.

Transverse Contraction Joints. Construct transverse contraction joints by forming or sawing grooves in pavement surface for the pavement's entire width. Dowel bars and assemblies are not to be installed on transverse contraction joint.

Transverse contraction joints may be formed by depressing tool or device into plastic concrete before initial concrete set.

If uncontrolled shrinkage cracking occurs during or before joint sawing, modify sawing sequence accordingly or use other methods accepted by the Engineer. If necessary to eliminate uncontrolled shrinkage cracking, add more sawing units or use early entry concrete cutting machines with special blades that cut through relatively fresh concrete without needing water. Where transverse crack occurs prior to sawing and any point on crack is within 5 feet of planned transverse contraction joint, omit sawing planned joint.

Unless otherwise indicated in the contract documents, construct groove between depths of 1/3 to 1/4 of pavement thickness.

(M) Final Strike-Off, Consolidation, and Finishing.

(1) Sequence. Sequence operations as follows: strike-off, consolidate, float, remove laitance, straightedge, and perform final surface finish. Provide work bridges and other equipment necessary to reach pavement surface to inspect, straightedge, finish, and perform corrective work as necessary.

Finish concrete surface without adding water to surface.

(2) Hand Finishing.

Use portable screed to strike-off and screed concrete

Use metal screed or metal-reinforced screed, that is at least 2 feet longer than widest part of slab to be placed.

Consolidate concrete with hand-operated vibrator.

Move screed along forms in forward motion that combines longitudinal and transverse shearing motion without raising either end from side forms. Repeat this strike-off process until pavement is true to grade and cross section, and surface texture is uniform and free of porous areas.

(3) Floating. After striking off and consolidating concrete, use float to finish surface to specified grade and smoothness. Use one of the following methods:

(a) Hand Method. Use hand-operated, longitudinal float at least 12 feet long and 6 inches wide and sufficiently rigid to retain its shape. Operate longitudinal float from footbridges. Work float in sawing motion while holding it in position parallel to road centerline and passing it gradually from one side of pavement to the other.

Move ahead along pavement centerline, advancing not more than one-half of float length. Waste excess water and laitance over side forms on each pass.

(b) Mechanical Method. Adjust tracks and float to required crown. Coordinate float with adjustments of transverse finishing machine so that small quantity of mortar is maintained ahead of float. Operate float over pavement as few times and at such intervals as is necessary to produce surface of uniform texture. Excessive operation over a given area will not be allowed. Waste excess water and laitance over side forms on each pass.

(c) Alternate Mechanical Method. Use equipment with cutting and smoothing float or floats, suspended from and guided by rigid frame mounted on four or more visible wheels. Maintain constant contact of all four wheels with forms.

After mechanical floating, use hand method to fill open-textured areas in pavement or if the method does not provide an acceptable finish.

(4) Straightedge Testing and Surface Correction. After completing floating and removing excess water and laitance, correct surface irregularities while concrete is plastic. Fill, strike-off,

consolidate, and refinish depressions. . Utilize a 12-foot wide "bump cutter" to shape plastic concrete. Cut down and refinish high areas. Smooth surface across joints to tolerances indicated in the contract documents.

Test concrete surface for trueness using 12-foot straightedge swung from handle that is 3 feet longer than one-half of slab width. Hold straightedge in contact with surface in successive positions parallel to road centerline. Test entire pavement width, moving from one side of slab to the other, as necessary. Advance testing operation along road, in successive stages of not more than one-half straightedge length.

(5) Final Finish. After surface sheen has disappeared, texture pavement surface without tearing it. Texture final surface using artificial turf drag followed immediately by metal comb transverse grooving device.

Use artificial turf made of molded polyethylene with synthetic turn blades measuring approximately 0.85 inches long and containing approximately 7,200 individual blades per square foot. Submit sample of artificial turf at least five working days before production.

Attach artificial turf to self-propelled equipment having external alignment control. Device shall be separate piece of equipment to be used exclusively for texturing operation and shall not be attached to other paving-train equipment. Artificial turf shall be approximately the full width of paving and of sufficient size that during the longitudinal artificial turf drag operation, approximately two to four feet of turf, measured parallel to pavement centerline, is in contact with pavement surface. Increase or decrease the depth of the artificial tuff drag by increasing the length of the artificial turf being drawn on the concrete surface or apply weight uniformly across the artificial turf. Maintain downward pressure on pavement surface with turf, so as to achieve uniform texturing parallel to the lane's centerline without measurable variations in pavement profile. Adjust timing of the operation if the surface is so wet or plastic that the ridges formed by the artificial turf flows back into the valleys when the drag has passed, nor should dragging be delayed until the concrete is so hard that sharp ridges cannot be formed by the drag. When artificial turf texturizing machine is stopped do not leave the artificial turf on the concrete, raise the artificial turf off the concrete. If the concrete hardens on the artificial turf remove harden concrete or replace artificial turf.

In addition to the artificial turf drag, grooving (tining) shall be done immediately after the artificial turf drag is performed by a self-

propelled mechanical device (grooving device) having an external alignment control and capable of grooving the entire width of pavement being paved in single pass at uniform speed. The grooving device shall be a separate piece of self-propelled equipment to be used exclusively for texturing operation and shall not be attached to other paving-train equipment. The metal comb which creates the tining marks shall include a single line of evenly spaced, tempered spring steel tines of size and stiffness sufficient to produce grooves of specified dimensions in plastic concrete without edge slumping and severe surface tearing. Adjust comb or use other methods so if structural fiber reinforcement is used displacement or pulling of those fibers is minimal. Operate grooving device to produce a uniform pattern of grooves parallel to pavement centerline. If the surface is tearing, the contractor shall decrease the speed of tining or move the tining machine closer to the paver or make whatever adjustments needed to prevent the tearing. If the tined grooves are slumping, i.e., the surface is so wet or plastic that the ridges formed flow back into the valleys when the tine has passed or the concrete is not stiff enough; the contractor shall move the tining machine away from the paver. If the grooves are not deep enough, the contractor shall adjust the machine or move it closer to the paver or correct its timing if the concrete is so hard that sharp ridges cannot be formed by the tining machine. Inspect the tining comb before each use to ensure that it is clean; all tines are aligned and spaced correctly. Clean and repair tine comb as needed before use in order to have tining marks meet the contract documents requirements. Tine marks shall have in the harden pavement surface a uniform tine spacing of 0.75 inch between centers, 1/8 inch deep, and a tine width of 1/8 inch.

The timing of the tining operation shall be coordinated with the artificial turf dragging operation and adjusted for conditions to produce a grooves with uniform depth and grooves that are sharp and well-defined. The finished surface shall be free from rough or porous areas, irregularities, and depressions resulting from improper handling of the tining machine and artificial turf dragging operation.

Tining and artificial turf drag shall be parallel and aligned to the center line of the lane.

Small areas may be textured manually when accepted by the Engineer.

(6) Edging at Joints. After final finish, tool pavement edges to radius of 1/4 inch, along both sides of each slab; and on both sides of

transverse expansion joints, formed joints, and construction joints. Produce smooth, dense mortar finish.

Eliminate tool marks on slab, next to joints. Avoid disturbing rounding of slab corners. Remove concrete from joint filler top.

Before concrete sets, test joints with straightedge and correct unevenness between joints and adjacent slabs.

(N) Surface Test. Perform surface tests not more than 14 days following concrete placement and before opening pavement to the public. Finished pavement shall conform to all of the following requirements:

Conduct surface test using 12-foot straightedge at locations determined by the Engineer. When straightedge is laid on finished pavement in direction parallel or normal to centerline, surface shall not vary more than 1/4 inch from lower edge.

(O) Curing. After finishing operations have been completed and as soon as marring of concrete will not occur, cure entire newly placed concrete surface and edges in accordance with one of the methods described in this subsection. When curing requires use of water, assign highest priority for project water supply allocation to curing operations. Suspend concrete operations if there is insufficient cover material or water supply for curing and other project requirements. Do not leave concrete exposed for more than 30 minutes between stages of curing or during curing period. Use atomized fog spray to place water into the air to increase the humidity as an interim cure or other methods accepted by the Engineer until final curing medium is in place. Cure concrete for at least 72 hours immediately after finishing operation. When water is used the water shall not change the water/cement ratio of any portion of the concrete.

(1) Cotton or Burlap Mats. Cover surfaces to be cured with cotton or burlap mats having dimensions that when placed, extend at least 2 feet beyond edges of concrete strip placed. Overlap mats at least 6 inches. Place and maintain mats in complete contact with surface being cured, throughout curing period. Keep mats fully moist and in position for entire portion of required cotton or burlap curing period. Dried mats may be cause of rejection of the affected concrete. Address any run-off water in the BMP plan required in Section 209.

(2) Waterproof Paper. Thoroughly wet pavement surface and edges before placing paper. Cover surfaces to be cured with waterproof paper, sized to extend when sheets are placed, at least 2 feet beyond edges of concrete strip; or sized to match pavement width and supplemented with 2-foot paper edge strips. Overlap

sheets at least 18 inches. Place and maintain paper in complete contact with surface being cured, throughout curing period. When sheets are laid longitudinally, seal paper so that it does not open up or separate during curing period.

(3) White-Pigmented Curing Compound. Immediately after finishing surface and before concrete set has taken place, spray uniformly surfaces to be cured with white-pigmented curing compound. When cotton or burlap mats are used to initially cure pavement, apply white-pigmented curing compound upon removal of mats. Do not apply curing compound during and immediately after rainfall.

Use fully atomized mechanical sprayer equipped with tank agitator and wind guard to apply curing compound, under pressure, at rate of at least one gallon per 100 square feet. Before spraying, compound shall be in thoroughly mixed condition with pigment uniformly dispersed throughout vehicle. Mechanically agitate compound continuously during application. Hand-pump sprayers will be allowed only for spraying irregular widths and shapes and concrete surfaces exposed by form removal. Do not apply curing compound to inside faces of joints to be sealed. Sprayed surface when curing compound has dried shall have no holidays or areas that are not colored white by the curing compound. If surface is not white in color immediately reapply and keep reapplying curing compound until surface is white and remains white for the entire curing period. Provide means to verify application rate.

If curing film is damaged during required curing period, immediately repair damaged portions with additional curing compound. Upon removal of side forms, immediately protect exposed slab edges with curing treatment equivalent to that provided for pavement surface. After saw cutting the joints and the removal of all concrete residue apply curing compound to the joint to seal the newly sawed concrete surface.

Before concrete is poured against a surface that has curing treatment applied to it the curing treatment shall be completely removed. Care shall be taken during the removal of the curing compound not to disturb the aggregate material under the concrete slab or undermine the slab.

(4) White Polyethylene Sheeting. Cover surfaces to be cured with polyethylene sheeting, sized to extend when sheets are placed, at least 2 feet beyond edges of concrete strip. Overlap sheets at least 18 inches. Place and maintain sheeting in complete contact with surface covered, throughout curing period.

(P) Sealing Joints. Clean and seal joints after completion of curing period and before pavement is opened to traffic. Clean each joint thoroughly of foreign matter, including debris, dirt, dust, concrete, saw cuttings, and curing material. Collect and dispose of all removed material.

Dry joint surfaces before sealing joint. Apply sealing material as indicated in the contract documents. If hot sealer is used, stir material during heating to prevent localized overheating. Pour sealing material without spilling on exposed concrete pavement surfaces. Immediately remove and clean excess material from pavement surface. Use of sand or similar material as a cover for sealing material will not be allowed.

(Q) Protection of Pavement. Protect pavement and its appurtenances from public and construction traffic. Protection shall include using flaggers to direct traffic; and erecting and maintaining warning signs, lights, pavement bridges, and crossovers.

Where indicated in the contract documents, construct pavement crossings for convenience of public traffic in accordance with Subsection 104.09 - Maintenance of Traffic.

Furnish and install materials for edge and surface protection of unhardened concrete. Edge protection materials include standard metal forms and wood planks having nominal thickness of not less than 2 inches and nominal width of not less than pavement-edge thickness. Surface protection materials include burlap or cotton mats, curing paper, and plastic sheeting. Stop paving operations when rain appears imminent.

Repair or replace damaged pavement before final acceptance.

(R) Opening to Traffic. Allow traffic on pavement when test specimens conforming to Subsection 411.03(J) - Test Specimens have attained flexural strength of 550 pounds per square inch when tested in accordance with AASHTO T 97. Traffic will not be allowed on pavement sooner than seven days after concrete placement, regardless of strength attainment.

Clean, sign, mark pavement properly, install all safety devices and clear pavement of obstructions before opening roadway to public traffic.

Construction traffic, equipment, and materials will not be allowed on pavement during the curing period and before the time designated and accepted in the paving plan.

Should the Contractor open the pavement to traffic before all testing is complete the contractor is to provide traffic control for all testing being performed and the preparation of the test locations at no additional cost.

Provided labor, material and equipment to prepare the area to be tested as directed by the engineer at no additional cost. Flexural strength testing shall be completed and meet required time and strength requirements before opening pavement to traffic.

(S) Pavement Thickness. The Engineer will determine coring locations and observe coring operation. The Engineer will check thickness of pavement by cores obtained by the Contractor in accordance with AASHTO T 24. The Engineer will measure cores in accordance with AASHTO T 148, except that measurement will be taken to nearest one thousandth of an inch; and average of such measurements will be taken to nearest one hundredth of an inch. Take thickness core samples after completion of corrective work.

The Engineer will remove non-PCC pavement materials from bottom of core before determining pavement thickness.

Thickness core samples will be evaluated on basis of primary and secondary units. Primary pavement unit is defined as that area of mainline pavement placed in each day's paving operations, but not to exceed 1,300 square yards. Each ramp, including tapers, each intersection, and each crossover will be considered separate primary units. Drill one core for each primary unit. The Engineer will determine the location of all cores.

Secondary pavement unit is defined as 1,000 linear feet, or fraction thereof, of each mainline traffic lane and each shoulder in each primary unit. Additionally, each 1,300 square yards or faction thereof, of pavement in ramps, tapers, intersections, and crossroads will be considered secondary units, regardless of when concrete was placed. Drill one core for each secondary unit.

When the primary or secondary unit core is deficient by more than 0.2 inch but less than 0.6 inch, drill two additional cores within same secondary unit. Length of initial and two additional cores will be averaged.

When the primary of secondary unit core is deficient by more than 0.6 inch, that core will not be used to determine average thickness of the primary or secondary unit. Drill additional cores at intervals not exceeding 10 feet in each direction from deficient core, measured parallel to centerline, until one core is obtained in each direction, which is not deficient by more than 0.6 inch. Pavement thickness between these two additional cores will be evaluated separately from balance of pavement in that lot.

Pavement limits for separate evaluation will be longitudinal weakened plane or construction joint on each side of core and next transverse weakened plane, construction, or expansion joint, beyond each of last two cores. Unless the Engineer allows pavement within evaluation limits to

remain, remove and replace with pavement of specified thickness, at no increase in contract price or contract time. Drill one additional core in remaining portion of the primary or secondary unit. That portion will be evaluated separately for payment in accordance with provisions specified in Subsection 411.05 - Payment.

After replacing deficient pavement, drill one core at random in the primary or secondary unit beyond limits of replaced pavement and drill one core in replaced pavement. The Engineer will evaluate for payment, pavement represented by core taken beyond limits of replaced pavement in accordance with provisions specified in Subsection 411.05 - Payment.

Before filling, apply epoxy grout conforming to Subsection 712.04(B) - Epoxy Grout to core holes. Fill core holes completely with concrete accepted by the Engineer.

(T) Cracks and Other Defects in Pavement. The Engineer will inspect for cracks and other defects in the placed concrete pavement after a minimum of 60 days has passed since the day of installation. The contractor shall lightly wet the concrete surface and let the surface dry so that cracks in the pavement become visible. Repeat as often as required by the Engineer. Other defects in the pavement may be located by using means determined by the Engineer. Provide traffic control during the inspection as well as cleaning the pavement. All cracks and defects in the pavement shall be repaired using a method acceptable to the Engineer or if directed by the Engineer the pavement is to be removed and replaced.

(U) Certified Concrete Flatwork Finisher Requirement. Perform the placement, and finishing operations of concrete flatwork with a minimum ratio of one certified ACI Concrete Flatwork Finisher and Technician with 4,500 hours of acceptable work experience (certified craftsman) per three concrete finishers (concrete finishers without ACI Concrete Flatwork Finisher and Technician certification and 4,500 hours of acceptable work experience) at each location on the project site having flatwork done. The concrete flatwork shall be under the direct supervision of a certified craftsman. Designate the certified craftsman who will be supervising and responsible for determining the quality of the finish of the concrete flatwork being performed. No flatwork shall be performed without the required amount of certified craftsman present.

a. Flatwork concrete is defined as any concrete work that requires tools or machines to be used during the placement and finishing operations of concrete. Concrete flatwork includes concrete work that requires a specified finishing, smoothness or rigid surface tolerances such as sidewalks, walkways, Portland cement concrete pavement, concrete white-topping, girder seats, pier caps, bridge decks, on-grade concrete slabs,

approach slabs, concrete overlays, and concrete repairs which exceed one square foot per day.

b. Areas that are not considered flatwork concrete are the top of foundations or structures that will have backfill material placed directly on the concrete surface.

c. Submit copies of the craftsman's current ACI certification 30 days before concrete flatwork begins for the Engineer's review and acceptance. The Engineer has the right to require the removal, replacement, retraining and re-certification of a certified craftsman if that person does not, in the opinion of the Engineer, demonstrate the ability to place and finish concrete in accordance with the practices recommended in the ACI Concrete Flatwork Finisher Certification Program and to meet the finishing standards required by the contract documents.

d. Any cost or impact to the contractor in providing, training, certification, retraining, replacement or re-certification is incidental to the contract items that require concrete flatwork.

411.04 Measurement. The Engineer will measure concrete pavement per cubic yard in accordance with the contract documents.

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

The Engineer will pay for each of the following pay item when included in the proposal schedule:

Pay Item	**Pay Unit**
Concrete Pavement, _____	Cubic Yard

The Engineer will pay for:

(A) 70 percent of the contract bid price upon completion of furnishing and placing formed joints or cutting grooves in pavement.

(B) 30 percent of the contract bid price upon completion of cleaning up, including removal of saw-cutting residue and the conforming results are obtained for the pavement thickness.

When the primary or secondary unit core thickness is deficient by not more than 0.2 inch from planned thickness, the Engineer will pay for that primary or

secondary unit at 100 percent.

When the primary or average secondary unit core thickness indicates pavement thickness is deficient by more than 0.2 inch but not more than 0.6 inch, the Engineer will determine pay for that the primary or secondary unit at an adjusted price that will be the final adjusted price after adjustments have been made for other deficiencies, if any are applicable.

The Engineer will not pay for pavement allowed to remain with thickness deficiency greater than 0.6 inch.

When the Engineer determines that thickness-deficient areas warrant removal, remove and replace those areas with concrete having thickness indicated in the contract documents. Replacement pavement will be in accordance with requirements of Subsection 411.03(T) - Pavement Thickness and this subsection.

The Engineer at its sole digression may subtract from the monthly payment the amount previously paid for work that is found non-conforming."

END OF SECTION 411

MINUTES OF THE PRE-BID MEETING

PROJECT: Kapule Highway Pavement Repair
Halau Street to Ahukini Road
District of Lihue, Island of Kauai

PROJECT NO. 51B-01-17M

LOCATION: 1720 Haleukana Street
Lihue, Kauai, Hawaii

DATE & TIME: April 18, 2017 at 9:00 A.M.

IN ATTENDANCE:

Raymond McCormick	HDOT – HWY-K
Fred Reyes	HDOT – HWY-K
Bernie Vargas	HDOT – HWY-K
Jared Tavares	Kiewit
Sarah Nartatez	Goodfellow Bros. Inc.
Mike Minkemann	Goodfellow Bros. Inc.
Scott Sheldon	Earthworks Pacific

The meeting started at 9:00 A.M. Fred Reyes began the meeting with a brief overview of the background and scope of work.

The following was raised at the meeting by HDOT:

HDOT informed that major construction activities shall be done at night. Refer to Section 107 - Legal Relations and Responsibility to Public of the Special Provisions regarding working hours and noise variance.

HDOT informed that dowel bars and assemblies for longitudinal/transversal joint and profilograph for surface test does not apply to this project. Section 411 – Portland Cement Concrete Pavement will be revised via an Addendum.

HDOT informed that the depth of sawcut and dimensions of jointing spacing plan called out on Plan Sheet No. 9 – Typical Sections will be revised via an Addendum.

The following questions were raised at the meeting:

Question # 1: Who will manage the project during construction?

Response: HDOT in-house personnel will manage the project during construction.

Question # 2: If the bid opening date remain as specified in the Notice to Bidders, when is the tentative Notice to Proceed?

Response: Notice to Proceed would be January 2018 at the earliest.

The following Request for Information (RFI) was received after the meeting:

RFI # 1: Per Plan Sheet No. 13 – Pavement Marking, Legend, Details, Notes & Summary, pavement marking for bicycle lane calls out for 6- inch white stripe. Clarify the width of the white stripe.

Response: Pavement marking for bicycle lane shall be 4-inch. Plan Sheet No. 13 – Pavement Marking, Legend, Details, Notes & Summary will be revised via an Addendum.

RFI # 2: Per Plan Sheet No. 19 – Detectable Warning Plan and Details, Note No. 7 calls out for "Cast-In-Tact" type detectable warning system. Clarify if this is the type of detectable warning system to be installed on this project.

Response: Detectable warning system shall be surface applied to an existing portland cement concrete pavement. Plan Sheet No. 19 – Detectable Warning Plan and Details will be revised via an Addendum.

RFI # 3: Will the Contractor be able to construct the concrete pavement by hand finishing per Section 411.03(M)(4)(b) and hand floating using the method per section 411.03(M)(5)(a) as specified in Section 411 – Portland Cement Concrete Pavement dated r1/31/17 in lieu of a self-propelled finishing machine, slip form paving machine? Or will the self-propelled finishing machine be required for the concrete pavement?

Response: Refer to Section 411 – Portland Cement Concrete Pavement dated r4/18/17.

RFI # 4: Will the Contractor be allowed to manually texture the new concrete pavement in lieu of the requirements of section 411.03(M)(7) as specified in Section 411 – Portland Cement Concrete Pavement dated r1/31/17?

Response: No.

With no further questions or comments, the pre-bid meeting was adjourned at 10:00 A.M.

The minutes of the meeting will be distributed in Addendum No. 1 to the Contract Plans. Contractors will be notified when addendum will be available for pick up.

PROJECT NO.: 51B-01-17M - KAPULE HIGHWAY PAVEMENT REPAIR, HALAU STREET TO AHUKINI ROAD

DATE: APRIL 18, 2017 9:00 AM LOCATION: 1720 HALEUKANA STREET, LIHUE, KAUAI, HAWAII 96766

CALLED BY: RAYMOND McCORMICK

PLEASE PRINT

	PARTICIPANT	COMPANY / ORGANIZATION	ADDRESS (Including City and Zip Code)	EMAIL (Print legibly)	PHONE/FAX NUMBERS
1	BERNIE VARGAS	HDOT	1720 HALEUKANA ST. KAUAI 96766	BERNIE.P.VARGAS@HAWAII.GOV	(808)241-3018 (FAX) 241-3011
2	JARED TAVARES	KIEWIT	1001 KAMOKILA BLVD. SUITE 305, KAPOLEI 96707	jared.tavares@kiewit.com	(808)674-1088 (808)674-1235
3	Sarah Narfaez	Goodfellow Bros, Inc.	15000 Haleukana St. Lihue HI 96766	sarahn@goodfellowbros.com	(808)658-0038 (808)241-4605
4	MIKE MINKEMANN	GOODFELLOW BROS, INC	1566 Haleukana St, Lihue, HI 96766	michaelm@goodfellowbros.com	(808) 753-9896
5	Scott Sheldon	Earthworks Pacific	4150 Hoala st Lihue HI 96766	scott@earthworkspacific.com	808-246-8808/246-8812
6	Ray McCormick	HDOT	1720 Haleukana ST, Lihue 96766	raymond.j.mccormick@hawaii.gov	808 241 3015
7	Fred Reyes	HDOT Kauai Hwys	1720 Haleukana St. Lihue 96766	fred.reyes@hawaii.gov	808-241-3017 FAX 241-3011
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