SECTION 503 –CONCRETE STRUCTURES

Make the following amendments to said Section:

(I) Amend 503.03(B) Falsework, Formwork, or Centering by revising the fourth paragraph from lines 73 to 84 to read as follows:

“Use the Alternate Design Method and service limit state in ACI 318 – Building Code Requirements for Structural Concrete for the design of falsework, formwork, or centering but the maximum extreme flexural fiber stress of the concrete in compression shall not exceed 0.40 fc. AASHTO, UBC/ICBO and other industry specifications or codes may be used upon acceptance where allowable stresses are not specified in ACI. Limit maximum deflection due to weight of dead and live loads to 0.4 percent of span. Provide camber strips to compensate for deflections or other movements greater than ¾ inch.”

(II) Amend 503.03(F)(1) General by adding the following paragraphs after line 419:

“At the time of placement, the concrete temperature shall not exceed 85 degrees Fahrenheit.

The rate of evaporation shall be measured by using the nomograph ACI 308R-23 Figure 4.1. When the rate of evaporation exceeds 0.15 lb/sq ft/hr, the concrete shall be fogged before and after finishing. Fog nozzles, in lieu of garden hose nozzles, shall be used to atomize water using air pressure to create a fog blanket. If plastic shrinkage cracks appear during finishing, the cracks shall be closed by striking each side of the crack with a float and refinishing the concrete.”

(III) Amend 503.03(M)(3)(a)(1) Machine Finishing by revising the first sentence of the third paragraph at lines 1023 to 1025 to read as follows:

“Before the Contractor begins concrete operations, the Contractor shall operate the strike off and finishing machines over the full length and full width of the bridge segment to be paved.”

(IV) Amend 503.03(M)(3)(a)(1) Machine Finishing by replacing the last two paragraphs at lines 1103 to 1111 with the following:

“The South Punalu’u Stream Bridge and the approach slabs shall be textured longitudinally by mechanical grooving. Grooves shall be cut into the hardened concrete using a mechanical water-cooled diamond edge blade saw device which shall leave grooves nominally 0.095-inch wide and 3/16-inch deep. The grooves shall be spaced apart in random spacing. The distance between the centers of grooves will have the following sequence: ¾-inch, 1-1/8-inch, 5/8-
inch, 1-inch, 5/8-inch, 1-1/8-inch, and 3/4-inch, in six-inch repetitions across the width to be grooved, in one pass of the mechanical saw device. If the machine is not able to groove the width in one pass, it shall match the pattern exactly and no joint shall be visible. One six-inch sequence may be adjusted by 1/4 sequence increments, to accommodate various cutting head widths, provided the general pattern is carried out. The tolerance for the width of the grooves is 0 to +0.05-inch. (i.e., the maximum groove width shall be 0.145-inch wide and the minimum groove width shall be 0.095-inch wide) and the tolerance for the depth of the grooves is +/- 1/16-inch. The tolerance for the spacing of the grooves is +/-1/4-inch at the exterior curves, between passes; this will be allowed to accommodate any bridge curvature.

If grooves cannot be cut in a continuous longitudinal operation, the continuation of grooves shall be aligned such that joints are not visible. If, after the initial grooving, it is discovered that there are portions of the surface that remain ungrooved, the Contractor shall groove these areas based on a remedial plan accepted by the Engineer.

Before grooves are cut into the accepted hardened concrete, a final straight edging and corrective work, if required, shall be done by the Contractor. Grooves shall be cut continuously and parallel to the bridge railings and roadway baseline. Grooving shall be done after the concrete has attained sufficient strength to prevent spalling and reveling, and before the structure is opened to traffic.

A working drawing to control, collect and dispose of run-off water at an accepted off-site facility shall be submitted to the Engineer.

The requirements of Section 411.03(I) – Placing, Consolidating, and Shaping Concrete and Section 411.03(N) – Surface Test shall apply to the bridge deck.

The Contractor shall not apply any additional water to the deck surface in an effort to aid his finishing operation. The unauthorized application of water will result in the rejection of that day's concrete placement.”

(V) Amend 503.03(2)(b) Sidewalks and Median Strips from line 1182 to 1191 to read follows:

“Provide final finish for concrete sidewalks and median strips using wooden float. Immediately after concrete has received a floated finish, give the concrete surface a coarse transverse scored texture by drawing a broom across the surface. Degree of texture shall be as approved by the Engineer and shall be based on at least one site cast sample slab. The sample slab shall be a minimum of 7-feet wide by 10-feet long. The site cast sample slab shall be
approved prior to construction of the bridge deck. Additional samples shall be provided at no cost until such time as a sample is approved by the Engineer.

Tolerances for concrete sidewalks and median strips shall as a minimum, be conventional straightedged tolerance in accordance with ACI 117.”

(VI) Amend 503.05 Payment from line 1206 to 1223 to read as follows:

“503.05 Payment. The Engineer will pay for the accepted concrete on a contract lump sum basis. Payment will be full compensation for the work prescribed in his section and the contract documents.

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Grooving</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Concrete</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

The Engineer will pay for excavation and backfill for foundations in accordance with and under Section 205 – Excavation and Backfill for Bridge and Retaining Structures and Section 206 – Excavation and Backfill for Drainage Facilities.

The Engineer will pay for reinforcing steel in accordance with and under Section 602 – Reinforcing Steel.”

END OF SECTION 503