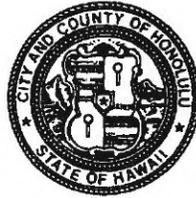


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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PETER B. CARLISLE
MAYOR



JIRO A. SUMADA
ACTING DIRECTOR

October 12, 2012

ENGINEERING AND POLICY MEMORANDUM NO. CEB-1-12

TO: ENGINEERS, DEVELOPERS, UTILITY COMPANIES, GOVERNMENT AGENCIES, CONTRACTORS, AND OTHER INTERESTED PARTIES

FROM: JIRO A. SUMADA, ACTING DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: AMENDING THE STANDARD SPECIFICATIONS ON ASPHALT TREATED BASE, ASPHALT SURFACE TREATMENT, AND ASPHALT CONCRETE PAVEMENT

This memorandum updates the "Standard Specifications for Public Works Construction, September 1986" (1986 Standards) by: a) adding the use of reclaimed asphalt pavement (RAP); b) deleting prime coat; and c) updating the asphalt binder grading system.

The revisions have been developed with the assistance of Hawaii Asphalt Paving Industry, and coordinated with the City Departments of Design and Construction (DDC), Facility Maintenance, and Transportation Services. The revisions on the use of RAP support the City's policy on sustainability of its natural resources established under City Council Resolution No. 10-231.

These new standards become effective on November 1, 2012, for the City and County of Honolulu only.

Reclaimed Asphalt Pavement (RAP)

RAP is a product produced by cold-planing or milling of existing asphalt surface pavements. Use of RAP in the production of asphalt pavements is a common industry practice. On Oahu, the contractors own the RAP produced from their milling operations and their inventory is growing steadily. The use of RAP in asphalt pavements would ease this growth in the inventory and would also be a more sustainable practice.

The current State Department of Transportation (DOT) specification, as well as contract special provisions for City street rehabilitation and reconstruction projects, allow up to 20% RAP of total weight of the mixture (TWM) in the asphalt surface pavement. For asphalt treated base, up to 30% RAP of TWM can be used in Batch-type asphalt manufacturing plants and up to 40% RAP of TWM in Drum-type asphalt manufacturing plants.

This memo revises the 1986 Standards to include the use of RAP to the same extent as allowed by the DOT and DDC projects. The use of RAP in asphalt treated base (Section 32) and asphalt pavement (Section 34) requires additional language to these two sections as follows:

Add the following paragraph after the first paragraph of "Section 32.2 B 2" of the 1986 Standards:

"2a) Aggregate may include reclaimed asphalt pavement (RAP) quantities up to 30% RAP of TWM in Batch-type asphalt manufacturing plants and up to 40% RAP of TWM in Drum-type asphalt manufacturing plants. RAP is defined as removed or reprocessed pavement materials containing asphalt and aggregates. Process RAP by a combination of crushing and screening until 100 percent of RAP passes 1-1/4-inch sieve. Size, grade uniformly, and combine materials such that blend of RAP and aggregate material conforms to grading requirements of the above table."

Add the following paragraph after the second paragraph of "Section 34.2 B" of the 1986 Standards:

"Aggregate may include reclaimed asphalt pavement (RAP) quantities up to 20 percent of TWM. RAP is defined as removed or reprocessed pavement materials containing asphalt and aggregates. Process RAP by a combination of crushing and screening until 100 percent of RAP passes 1/2-inch sieve. Size, grade uniformly, and combine materials such that blend of RAP and aggregate material conforms to grading requirements of Table I-34 Asphalt Concrete Composition and Gradation."

Prime Coat

The purpose of a prime coat is to coat and bond loose material particles on the surface of the base, harden or toughen the base surface to provide a work platform for construction equipment, protect the base from moisture, and provide adhesion between the base course and the succeeding course.

According to the Asphalt Institute, at one time it was thought that a prime coat was an essential element of good pavement construction. However, in recent years some engineers have eliminated the use of a prime, especially when asphalt layer(s) (surface and/or base) is 4 inches or more in thickness. Over the past 20 years, few, if any, pavement failures can be attributed to the lack of prime coat.

Prime coat is no longer required by the City for the following reasons:

1. MC-30, which is the most effective material for a prime coat, has been deemed unfriendly to the environment and is no longer available in Hawaii.
2. As noted above, a prime coat can be eliminated if the asphalt layer is 4 inches or more in thickness. The current City standard on structural design for new streets requires minimum thicknesses of two inches of asphalt concrete surface course and three inches of asphalt treated base course over the aggregate base course. Moreover, the current City policy on trench repaving requires a minimum thickness of four inches of asphalt concrete surface course. Thus, the need for a prime coat on the aggregate base course is eliminated by the thicknesses of the overlying asphalt layers.

Section 33, Asphalt Surface Treatments, of the 1986 Standards shall be deleted in its entirety and replaced with the attached revised Section 33. Furthermore, all other references to prime coat in the 1986 Standards shall be deleted.

Asphalt Binder

The 1986 Standards specify asphalt cement using the penetration grading and viscosity grading systems. However, the performance grading (PG) system is the one most used in Hawaii, and it is also the one used in the DOT 2005 specifications, as well as contract special provisions for DDC's street rehabilitation and reconstruction projects. PG 64-16 is the only grade of asphalt cement currently supplied in Hawaii. Furthermore, AASHTO M320 is the current standard of the industry for asphalt binder.

Replace the first paragraph of "Section 34.2A. Asphalt" and paragraph 32.2B1 from "Section 32. Treated Bases" of the 1986 Standards with the following paragraph:

"The asphalt binder grade shall be PG 64-16. Performance graded asphalt binder shall conform to AASHTO M 320."

Should there be any questions, please call Weston Wataru of our Civil Engineering Branch at 768-8215.

JAS:dak
Attachment

cc: Hawaii Asphalt Paving Industry
Councilmember Stanley Chang, Chair
Committee on Public Works and Sustainability
All SDD Branches

SECTION 33 ASPHALT SURFACE TREATMENT

33.1 DESCRIPTION

This work shall include furnishing and applying liquid asphalt on surface areas preparatory to the laying of an asphalt concrete pavement or other surface construction. A tack coat shall be applied to the prepared surface of existing pavement to provide bond between the existing surface and the new construction.

33.2 MATERIAL

Tack Coat. Tack coat shall be either SS1 or SS-1H emulsified asphalt. The bituminous material shall meet the requirements under AASHTO M 140.

33.3 DETAILS

Immediately before applying the tack coat, the surface to be treated shall be swept clean of all loose material, dirt, excess dust or other objectionable material. No application shall be permitted when the surface is wet or when weather conditions are unsuitable.

The liquid asphalt shall be uniformly distributed over the surface by means of sprayer type distributor, pressure operated, mounted on a truck.

Curbs, gutters, sidewalks and other improvements shall be protected from splashing of asphalt. Surfaces splashed with asphalt shall be immediately cleaned.

Tack Coat. Tack coat shall be spread at the approximate rate between 0.05 and 0.10 gallon per square yard of surface covered. Hand sprayers shall be used to apply the liquid asphalt around castings, areas inaccessible to the distribution bars, and wherever cover is insufficient.

The material shall be heated and applied at a temperature between 75° to 130°F.

Tack coat shall be placed only so far in advance of the surface course placement as necessary for it to cure properly. The Contractor shall be responsible for the placement of the surface course and the protection of the tack coat.

A tack coat shall be applied to edges of existing pavement, manhole frames, gutters, or curbs against which asphalt concrete course is to be placed.

33.4 MEASUREMENT AND PAYMENT

Unless the proposal provides for separate payment for this item of work, furnishing and spreading tack coat shall be considered as included in the bid prices for the items in the proposal for asphalt concrete pavement or other surface construction.