PRODUCTION OF CERTIFIED AGGREGATE FROM RECLAIMED ROADWAYS

GENERAL

This IM deals with requirements for furnishing certified aggregate produced from reclaimed materials.

The requirements of Office of Materials IM 209 (Certified Aggregates Approved Producer Program) also apply to the production of aggregate from reclaimed roadway materials.

Processing Requirements for Aggregates Produced from Reclaimed Materials

Notification to District Materials personnel of new production, as well as testing frequency, sampling, documentation, and acceptance of recycled materials, are the same as for virgin materials as outlined in IM 209. The District Materials Engineer shall be afforded the opportunity to witness the stockpiling of unprocessed recycled material.

Processing of reclaimed PCC, crushed composite pavement (CCP), and salvaged HMA (RAP) shall include a means of eliminating material other than PCC, RAP, or CCP in the finished product. This may be accomplished by pre-screening or other methods acceptable to the District Materials Engineer. Stockpiles contaminated with soil or excessive recycled fines may require processing using a grizzly at the time of delivery to the recycle yard or as directed by the District Materials Engineer. Figures 1 through 6 show examples of poor (unacceptable) and clean stockpiles.

Stockpiles contaminated with reinforcing steel, soil, or other material can be rejected upon visual inspection. The producer or contractor shall be informed immediately that the stockpile has been rejected. Recycled yards must have controlled access and delivered material shall be inspected prior to incorporation into unprocessed stockpiles.

Moving Crusher Recycling Operations (such as a Paradigm)

- If multiple crushers and screening plants are used, each plant's production must have its own Q/C and monitor gradation testing.
- Sampling and testing frequency needs to be in agreement between the Producer and DME before production.
- Sampling locations must be identified using stationing, GPS, or other accurate and reliable method.
- Material must be from a known aggregate source or the quality establish prior to incorporation.

- Material cannot be incorporated until the material is represented by a complying gradation test result.

Modified Subbase and Granular Subbase

These products require that the reclaimed material be identifiable and the following shall apply:

A. Recycled crushed PCC pavement, crushed composite pavement (CCP), and salvaged HMA (RAP) can be reclaimed from an Interstate or Primary roadway pavement under the jurisdiction of the contracting authority and shall be certified based on gradation testing.

B. Recycled PCC roadway pavement or recycled composite roadway pavement obtained from secondary roads or municipal streets may be used if the source of the aggregate is known and the PCC coarse aggregate durability is Class 2 or better and shall be certified based on gradation testing. The producer shall be responsible for documentation of the pavement source.

C. When the source or quality of the material from the secondary or municipal pavement is unknown, the material shall be certified based on quality requirements identified in the Standard Specifications for crushed stone for the aggregate being produced and gradation requirements for the aggregate product.

    1. If the concrete originated from multiple locations, the crushed material from each location must be stockpiled in separate but homogeneous stockpiles.

    2. Prior to certification and furnishing to projects, each stockpile must be readily identifiable, and have compliant results on applicable tests on samples taken from each of these stockpiles.

D. On secondary and municipal projects, recycled material can also be reclaimed from roadway pavement under the jurisdiction of the contracting authority and shall be certified based on gradation testing.

Modified Subbase Production

Some aggregate products allow the blending of RAP with virgin aggregate or crushed PCC. The virgin aggregate or crushed PCC shall meet the gradation and quality requirements of the intended product before blending with RAP. HMA shall be processed into RAP, meeting the applicable nominal maximum size for the intended product before blending with other aggregate.

The addition of unprocessed HMA shall only be allowed if it is generated from a composite pavement or consistent base layer. Material from HMA shoulders may only be used for Special Backfill. Blending of RAP shall be accomplished by the use of belt feeders and bins equipped

with adjustable gates or drive systems that can be calibrated and controlled. This is applicable to all permanent recycling operations as well as in-place recycling operations (such as the Paradigm). For Modified Subbase, the amount of recycled HMA shall not exceed 50%. RAP containing soil or other foreign material other than HMA will be considered contaminated and subject to rejection.

Granular Shoulders

Crushed recycled materials may total no more than 30% of the shoulder aggregate for new construction and no more than 50% of the total for existing granular shoulders. The intended proportions shall be provided to the District Materials Engineer at least 24 hours before the start of production. The District Materials Engineer shall be afforded the opportunity to witness the calibration of the blending equipment. The blending restrictions described in Modified Subbase also apply to Granular Shoulders.

Recycled PCC for Class D and Class E Revetment

Recycled PCC revetment must be reclaimed from Interstate or Primary roadway pavements or airport runways.

To meet the nominal top size of 250 pounds for Class D and Class E revetment, recycled PCC used for revetment must be 10 inches or greater in thickness. If the Engineer or project requires using riprap containing material larger than 250 pounds, recycled PCC will not meet the dimensional requirements of Section 4130.02. Recycled PCC will not meet the dimensional requirements for Class A, B, and C revetment.

Figure 1. Recycled stockpile contaminated with steel.

Figure 2. Recycled stockpile contaminated with organic material.

Figure 3. Recycled stockpile with excessive fines.

Figure 4. Recycled stockpile contaminated with non-pavement material.

Figure 5. Example of a clean stockpile of recycled HMA.

Figure 6. Example of a clean stockpile of recycled PCC.