

SECTION 02640

RECYCLED ASPHALT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 Description

A. Description of Work

The work to be performed in accordance with this section includes the manufacture and placement of hot recycled asphalt concrete pavement by central plant mixing. The work includes the removal of the existing asphalt pavement, stockpiling, crushing and combining with new materials and placement and compaction.

The recycled asphalt concrete pavement shall meet the design, quality and placement requirements of Specification Section 2630, Asphalt Concrete Pavement.

The work shall include the furnishing of all labor, tools, equipment, materials and performing all required operations to provide a complete item in accordance with the project plans and these specifications.

B. Related Work Specified Elsewhere

Aggregate Base Course.....Section 02610
Bituminous Prime and Tack Coat..... Section 02620
Asphalt Concrete Pavement.....Section 02630

C. Definitions

1. Reclaimed Asphalt Pavement (RAP)

Existing asphalt concrete pavement, removed and reduced to a uniform size to be recycled into asphalt concrete. Constituents include reclaimed asphalt cement and reclaimed aggregate.

2. Recycled Asphalt Concrete (RAC)

Reclaimed Asphalt Pavement (RAP), which has been mixed with new aggregate and new asphalt cement and/or recycling agent.

1.2 Quality Assurance

Reference test standards and specifications, Frequency of Testing, Acceptable Tolerances and Acceptance per Specification Section 2630, Asphalt Concrete Pavement, except as modified herein.

A. Reference Test Standards and Specifications

ASTM D4552, Practice for Classifying Hot Mix Recycling Agents

1.3 Submittals

A. Certificates of Compliance

1. Mineral Filler
2. Asphalt Cement
3. Recycling Agent

B. Materials Test Reports

1. Report on Coarse Aggregate (new)
2. Report on Fine Aggregate (new)
3. Recycled Asphalt Concrete Mix Design, include the following items in the report:
 - a. Name and address of laboratory and responsible party
 - b. Location of source aggregate
 - c. Supplier, refiner and grade of asphalt cement and recycling agent
 - d. Individual aggregate gradations

- e. Reclaimed asphalt pavement gradations
- f. Mix design gradations
- g. Aggregate and mix design test results and oids analyses
- h. Recommended asphalt cement and recycling gent contents
- i. Recommended laydown temperature
- j. Recommended mixing temperature
- k. Complete set of calculations
- l. Job Mix Formula
- m. Viscosity and pen of rap & rac

PART 2 - MATERIALS

2.1 Reclaimed Asphalt Pavement (RAP)

Reduce to 1 1/2" maximum size, well graded and uniform in appearance, free of detrimental quantities of organic, non-granular soils and deleterious materials.

2.2 Aggregates

Aggregates shall conform to Section 2630, Asphalt Concrete Pavement.

2.3 Mineral Filler

Mineral filler shall conform to Section 2630, Asphalt Concrete Pavement.

2.4 Asphalt Cement

ASTM D3381, ASTM D946.

2.5 Recycling Agent

ASTM D4552.

2.6 Recycled Asphalt Concrete Mixture

Recycled Asphalt Concrete mixture shall conform to the requirements for asphalt concrete mixture as specified in Section 2630, Asphalt Concrete Pavement.

2.7 Equipment

A. Bituminous Mixing Plant

ASTM D995, Central mixing plant modified to use RAP.

1. Batch Plant

Provide a separate RAP storage facility with direct access to the weight hopper or provide for RAP introduction to the hot aggregate elevator.

2. Drier-Drum Plant

Introduce RAP into the drier drum and combine with new aggregate in such a manner that the RAP is protected from dust contact with the burner. Introduce the new binder into the drum after the RAP and the new aggregate have been combined.

B. Hauling Equipment, Bituminous Paver, Rollers

Per Specification Section 2630, "Asphalt Concrete Pavement".

PART 3 - EXECUTION

3.1 Preliminary Investigation of the Work

Verify that all preliminary work had been performed in accordance with these specifications.

3.2 Weather Limitations

Do not place bituminous mixture upon a wet surface or when the surface temperature of the underlying course is less than 40 degrees Fahrenheit or when weather conditions otherwise prevent the proper and finishing of the bituminous mixture.

3.3 Tack and Prime Coat

Apply tack and prime coat per Specification Section 2620, "Bituminous Tack and Prime Coat".

3.4 Removal of Existing Pavement

Take special care to minimize contamination of the RAP. Use appropriate equipment and techniques to ensure uniform RAP for recycling.

3.5 Stockpiling

Stockpile RAP in such a manner as to avoid segregation. Protect RAP material from excessive moisture intrusion. Keep RAP materials separated from different RAP sources and new aggregates.

3.6 Crushing

Crush RAP to the maximum nominal size specified. Use all materials produced from crushing RAP in recycled mix. Coordinate crushing with manufacturing to minimize stockpiling.

3.7 Mixing

ASTM D315

A. Preparation of Bituminous Material

Heat bituminous material in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature. Deliver the bituminous material to the mixer at a temperature sufficient to provide a suitable viscosity for adequate coating of the aggregate particles. Do not exceed 350 degrees Fahrenheit.

B. Preparation of Mineral Aggregate

Dry and heat the aggregate for the mixture to the temperature designated by the job formula within the tolerance specified. The maximum temperature and rate of heating shall be such that no permanent damage occurs to the aggregates. The temperature shall not be lower than is required to obtain complete coating and uniform distribution of the bitumen on the aggregate particles and to provide

a mixture of satisfactory workability. The aggregate moisture content shall be less than 1.0 percent at the time of mixing.

C. RAP

Heat the RAP by heat transfer from the new aggregates and binder. Do not expose RAP to direct flame.

3.8 Transporting, Spreading and Finishing

Per Specification Section 2630, Asphalt Concrete Pavement.

3.9 Compaction

Per Specification Section 2630, Asphalt Concrete Pavement.

3.10 Joints

Per Specification Section 2630, Asphalt Concrete Pavement.

3.11 Preservative Seal

PART 4 - MEASUREMENT AND PAYMENT

4.1 Measurement

Measurement of recycled asphalt concrete quantities shall be per Specification Section 2630, Asphalt Concrete Pavement.

4.2 Payment

Recycled asphalt concrete pavement shall be paid per Specification Section 2630, Asphalt Concrete Pavement.

****END OF SECTION****