

SECTION 312 - PLANT MIX GLASSPHALT CONCRETE BASE COURSE

312.01 Description. This work includes constructing one or more courses of plant mix glassphalt concrete base (GCB) course on a prepared subgrade according to the contract.

312.02 Materials. The GCB course includes a uniform mixture of aggregate, crushed glass, and asphalt binder according to the contract.

The asphalt cement and aggregate material shall conform to following:

Bituminous Material (Asphalt Cement, Grade AR 60)	702.01
Aggregate	703.03

The Contractor shall process crushed glass to provide a uniform gradation from fine to coarse with one hundred (100) percent of the material passing the three-eighth (3/8) inch sieve. The blend of virgin aggregate and crushed glass shall produce a combined mixture of acceptable gradation. The proportion of crushed glass to virgin aggregate shall be a maximum of ten (10) percent.

The Contractor shall remove contaminants in the crushed glass such as plastics and paper before blending with the virgin aggregate.

The Contractor shall submit for acceptance, a job-mix formula for the glassphalt mixture the Contractor plans to supply. The job-mix formula shall show the source of aggregate, grade of bituminous material, and the proportion of crushed glass used in the mixture. The Contractor shall furnish only one (1) grade of bituminous material and one (1) crushed glass proportion for the product. The Contractor shall make grade or proportion changes only upon written acceptance by the Engineer.

The Contractor shall design the asphaltic concrete job mix formula using the procedures contained in the current edition of:

- (1) Chapter III, Marshall Method of Mix Design or
- (2) Chapter IV, HVEEM Method of Mix Design of the Asphalt Institute's Manual Series No. 2 (MS-2).

The Contractor shall submit test data used to develop the job-mix formula.

The total amount of bituminous binder in the GCB course mixture shall be between 4.0 and 6.0 percent.

The Contractor and the Engineer may decide the asphalt content of the GCB course mixture by the nuclear gage according to Hawaii Test Method HWY-LQ-25.

The Contractor shall not start GCB course work nor the Engineer accepts the mixture until the Contractor submits samples of the materials intended for use. The Contractor shall submit samples more than fifteen (15) working days before the GCB course work.

TABLE 312 - IA - JOB MIX FORMULA DESIGN CRITERIA

HVEEM Method Mix Criteria	Binder and Surface Course
Stability, minimum	37
Swell, maximum (inch)	0.030
Percent air voids	3 - 8
Marshall Method Mix Criteria	Binder and Surface Course
Compaction, number of blows each end of specimen	75
Stability, minimum pounds	2,000
Flow, 0.01 inch	8 - 16
Percent air voids	4 - 8

TABLE 312 - IB - MINIMUM PERCENT VOIDS IN MINERAL AGGREGATES

Nominal Maximum Particle Size, Inches	1.5	1.0	0.75
VMA, Percent HVEEM Method	11	12	13
VMA, Percent Marshall Method	12	13	14

312.03 Construction Requirements. Work in this section shall conform to Subsection 301.03 except as modified herein.

The Contractor shall compact the GCB course material according to Subsection 401.03(F) - Compaction immediately upon completion of spreading operation.

The equipment shall conform to Subsection 401.03 except as modified herein:

(1) The Contractor shall use an appropriate method to add the crushed glass to the virgin material. The method shall provide a positive control on proportioning of the crushed glass material into the mixture. The Contractor may use the same system to add crushed glass for plants equipped to add crushed reclaimed asphaltic concrete pavement. The finished mix temperature shall be at least two hundred and eighty (280) degrees Fahrenheit.

(2) The Contractor shall equip the paver with an electronic screed control device accepted by the Engineer. The electronic device shall include a grade controlling sensor mounted on each side of the paver. Each sensor shall take its grade reference from a ten (10) foot ski for the first pass. The Contractor may substitute one ski with a joint shoe riding on the finished adjacent pavement for subsequent passes.

The criteria on mat thickness shall be as follows:

(1) Contractor may spread and compact the mixture in one (1) layer where the required thickness of GCB course is six (6) inches or less.

(2) The Contractor shall spread and compact the mixture in two (2) or more layers of approximately equal thickness where the required thickness of GCB course is more than (six) inches. The maximum compacted thickness of a layer shall not exceed six (6) inches.

The Contractor shall furnish plant mix asphalt concrete base course conforming to Section 301 - Plant Mix Asphalt Concrete Base Course instead of GCB course where necessary. The Contractor shall notify the Engineer and obtain acceptance before doing such work.

Brooming off shall conform to Section 310 - Brooming Off.

The Contractor shall cut samples from the compacted pavement for testing within twenty-four (24) hours of lay down. The core's diameter of the cut pavement shall have a minimum of four (4) inches. The Contractor shall take samples of the mixture for the full depth of the course at the location ordered by the Engineer. The Contractor shall place and compact new material

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to conform to the surrounding area where the Contractor took samples. The Contractor shall consider the cost of sampling and restoring the area incidental to glassphalt concrete base course.

The Contractor shall apply tack coat to layers of GCB course for multiple lift construction. Tack coat shall conform to Section 407 - Bituminous Tack Coat.

312.04 Method of Measurement. The Engineer will measure the GCB course by the ton according to Section 109 - Measurement and Payment, except as modified herein. The Engineer will not require conversion of a base course quantity to tonnage based on bulk (dry) specific gravity.

The Engineer will not measure furnishing and applying of the bituminous tack coat for payment if not specified in the proposal.

312.05 Basis of Payment. The Engineer will pay for the accepted quantities of GCB course at the contract unit price per ton. The unit price shall be full compensation for the completed base including handling, materials, equipment, tools, labor and incidentals necessary to complete the work.

If not shown in the proposal, the Engineer will not pay for furnishing and applying of bituminous tack coat separately. They shall be considered incidental to the GCB course.

The Engineer will make payment under:

Pay Item	Pay Unit
Plant Mix Glassphalt Concrete Base Course	Tons