Project Manual

Specifications

Lumpkin County

Asphalt

Rehabilitation of Runway

and Taxiways at Lumpkin

County Wimpy Airport

Project# 2015-008-ITB

Modifications & Additions to the Specifications

Project# 2015-008-ITB

Listed below are modifications and additions to the 2013 State of Georgia Standard Specifications for Construction of Transportation Systems.

Prompt Payment

Sec; 104 - Scope of Work
Sec. 107 - Legal Regulations and Responsibility to the Public
Sec. 108 - Prosecution and Progress (4) (failure or Delay in Completing Work on Time)
Sec. 402 - Hot Mix Recycled Asphaltic Concrete (Off System)
Sec. 413 -Bituminous tack Coat
Sec. 424- Bituminous Surface Treatment
Sec. 802 -Aggregate for Asphaltic Concrete
Sec. 820 - Asphaltic Cement

Special Provisions

SECTION 104- SCOPE OF WORK

Delete Subsection 104.08 and Substitute the following:

104.08 Value Engineering Proposals

A. Applicability

This Section applies *to* those cost reduction proposals initiated and developed by the Contractor for changing the Plans, Specifications, or other requirements of the Contract. These provisions do not apply unless the proposal submitted by the Contractor is specifically identified as being presented as a Value Engineering Proposal (VEP) and the Contract amount is in excess of $50,000.

The cost-reduction Proposals contemplated are those discretionary changes which would require a Supplemental Agreement modifying the Contract and would produce a savings to the County by providing less costly items or methods than those specified in the Contract without impairing essential functions and characteristics including, but not limited to: service life, reliability, economy of operations, ease of maintenance, and safety, both during and after construction. Proposals must provide a product comparable to the original design at a lower cost or improved quality, or both. No proposals will be accepted that lower the quality of the project.

These provisions are applicable to the prime Contract and include all subcontracts.

B. Documentation

Value Engineering Proposals (VEP) will be processed in the same manner as prescribed for any other alterations of the Contract requiring a Supplemental Agreement.

As a minimum, the following information shall be submitted by the Contractor with each Value Engineering Proposal:

1. A description of the difference between the existing Contract requirement and the proposed change and the comparative advantages and disadvantages of each.
2. An itemization of the requirements of the Contract which must be changed and a recommendation of how to make such change (e.g., a suggested revision).
3. A detailed estimate of the cost of performing the work under the contract and under the proposed change.
4. A prediction of any effects the proposed changes would have on other costs to the County, including cost of related items and costs of maintenance and operation.
5. A statement of the time showing the last date by which an agreement for adoption of the proposed changes must be executed in order to obtain the maximum cost reduction during the remainder of the Contract, noting any effect on the Contract completion time or delivery schedule.
6. The dates of any previous or concurrent submissions of the Proposal, the Contract number(s) under which submitted, and the outcome or the result of the proposal in previous projects and any previous actions by the County, if known.
7. A life-cycle cost analysis.

NOTE: If a VEP is similar to a change in the Plans or Specifications for the Project that is under consideration by the County at the time said VEP is submitted, or if such VEP is based upon or similar to Standard Specifications Special Provisions, or Standard Plans adopted by the County after the advertisement of the Contract, the Lumpkin County Public Works Department will not accept such proposal and the County reserves the right to make such changes without compensation to the Contractor under the provisions of this Section.

Proposed changes in the basic design of a pavement type (e.g., rigid to flexible or vice versa) or pavement thickness will not be considered as an acceptable VEP. Proposed changes to base/subbase courses may be considered as an acceptable VEP. If design alternates are shown in the plans, the County will not consider a VEP substituting a design alternate on which the Contractor could have bid for one on which the Contractor has bid. The County reserves the right to reject any VEP submitted requiring additional Right-of-Way.

C. Submission

Value Engineering Proposals submitted by the Contractor will be processed as expeditiously as possible; however, the County will not be liable for any delay in acting upon proposals submitted. The Contractor may withdraw, wholly or in part, any VEP not accepted by the County within the time specified in Subsection 104.08.8.5.

D. Acceptance

The decision of the Lumpkin County Public Works Department as to the acceptance or rejection of a VEP shall be final and shall not be subject to the provisions of Subsection 105.13, "Claims for Adjustments and Disputes."

The Lumpkin County Public Works Department may accept, in whole or in part, before work has been completed, any VEP submitted pursuant to this Subsection and not withdrawn by the Contractor by giving the Contractor written notice thereof reciting acceptance under this Subsection.

E. Notification

The Contractor will be notified in writing of the County's decision or rejection of each VEP submitted under these provisions. If a proposal is accepted, the necessary Contract modifications will be affected by execution of a Supplemental Agreement. Unless and until a VEP is affected by such Supplemental Agreement, the Contractor shall remain obligated to perform The Work in accordance with the terms of the existing Contract.

Supplemental Agreements made as a result of this Subsection will state that they are made pursuant

to it. F. Sharing

In the event a VEP submitted by the Contractor under this Subsection is accepted, the Supplemental Agreement effecting the necessary modifications will establish the net savings agreed upon and will provide for an adjustment in Contract Prices that will divide the net savings between the Contractor and the County in accordance with the following provisions:

1. Division of net savings in Contract Price Adjustment:
   - 50 percent of the net savings to the Contractor.
   - 50 percent of the net savings to the County.
2. The County reserves the right to include in the agreement any conditions it deems appropriate for consideration, approval, and implementation of the VEP. The Contractor's 50 percent of the net savings shall constitute the full compensation for effecting all changes pursuant to the agreement.

   Development costs incurred by the Contractor and review costs incurred by the County shall not be considered in computing the net savings of the VEP.

Restrictions and Disclosures: Upon acceptance and implementation of any VEP, any restrictions imposed by the Contractor on its use or disclosure of the information submitted shall be void.
The County shall thereafter have the right to use, duplicate, and disclose, in whole or in any part, all data necessary in the utilization of the proposal.

SECTION 107 - LEGAL REGULATIONS AND RESPONSIBILITY TO THE PUBLIC

Delete Subsection 107.23 and Substitute the following:

107.23 Environmental Considerations

A. Construction

Erosion control measures shall be installed, to the greatest practical extent, prior to clearing and grubbing. Particular care shall be exercised along stream buffers, wetlands, open waters and other sensitive areas to ensure that these areas are not adversely affected.

Construction equipment shall not cross streams, rivers, or other waterways except at temporary stream crossing structures approved by the Lumpkin County Public Works Department.

Construction activities within wetland areas are prohibited except for those within the construction limits as shown on the Plans and as specified in Subsection 107.23.E.

Ail sediment control devices (except sediment basins) installed on a project shall, as a minimum, be cleaned of sediment when one half the capacity, by height, depth or volume, has been reached. Sediment basins shall be cleaned of sediment when one-third the capacity by volume has been reached.

B. Bridge Construction Over Waterways

Construction waste or debris, from bridge construction or demolition, shall be prevented from being allowed to fall or be placed into wetlands, streams, rivers or lakes.

Excavation, dewatering, and cleaning of cofferdams shall be performed in such a manner as to prevent siltation. Pumping from cofferdams to a settling basin or a containment unit will be required if deemed necessary by the Lumpkin County Public Works Department.

Operations required within rivers or streams, i.e. jetting or spudding, shall be performed within silt **containment areas, cofferdams, silt fence, sediment barriers or other devices to minimize migration of silt** off the project.

C. Borrow and Excess Material Pits

Specific written environmental clearance from the Lumpkin County Public Works Department will be required for any sites not included in the Plans as excess material or borrow areas. No work other than testing shall be started at any potential excess material or borrow site not shown on the plans prior to receiving said environmental clearance from the Lumpkin County Public Works Department.

The Lumpkin County Public Works Department will require a written notice from the Contractor requesting environmental clearance studies and written permission from the property owner at least six weeks prior to intended use of the site. The County will not begin studies on such sites before a Notice to Proceed is issued.

The Lumpkin County Public Works Department will inform the Contractor in writing as to the granting or denial of environmental clearance. If denied, the Contractor may, at no expense to the County, seek to obtain permits or pursue other remedies that might otherwise render the site(s) acceptable.

Sites included in the Plans have environmental clearance and shall be used only for the purpose(s) specified in the Plans or other contract documents. Should the Contractor wish to expand or utilize said sites for any purpose other than that provided for in the Plans or other contract documents, specific written environmental clearance as noted above shall be obtained.

D. Control of Pollutants

Pollutants or potentially hazardous materials, such as fuels, lubricants, lead paint, chemicals or batteries, shall be transported, stored, and used in a manner to prevent leakage or spillage into the environment. The Contractor shall also be responsible for proper and legal disposal of all such materials.

Equipment, especially concrete or asphalt trucks shall not be washed or cleaned-out on the Project except in areas where unused product contaminants can be prevented from entering waterways.

E. Temporary Work in Wetlands Outside of the Construction Limits within the Right-of-Way and Easement Areas.

Temporary work in wetlands (that are not delineated with orange barrier fence) will be subject to the following requirements:

1. Temporary work in wetlands shall be accomplished by using temporary structures, timber, concrete, soil with geotextile fabric, or other suitable matting. The area shall not be grubbed.

2. Soil matting shall be protected from erosion in accordance with the Specifications.

3. Whenever temporary work is required in Saltwater Marsh Wetlands, all temporary structures and/or matting shall be removed in their entirety prior to Final Acceptance of the Project. Matted and compressed soils shall be backfilled to their original ground elevation with material meeting the requirements of Section 212 -Granular Embankment.

4. Whenever temporary work is required in Freshwater Wetlands, all temporary structures and/or matting (exclusive of soil matting to be retained in the final roadway section) shall be removed in their entirety prior to Final Acceptance of the Project.

   Once the temporary materials have been removed, the area shall be covered by Excelsior or Straw blankets according to Section 713 of the Specifications. The grassing and ground preparation referenced in Subsection 713.3.03. "Preparation", will not be applicable to this Work.

5. The Lumpkin County Public Works Department shall be notified so that a field inspection may be conducted to certify that the temporary materials were properly removed and that the area was properly restored. The Contractor shall be responsible for any corrective action required to complete this Work.

6. There will be no separate measurement or payment for this Work. The cost associated with this work shall be included in the overall Bid submitted.

F. Environmentally Sensitive Areas

Some archaeological sites, historic sites, wetlands, streams, open waters and protected animal and plant species habitats within the Right-of-Way and easement areas may be designated as ENVIRONMENTALLY SENSITIVE AREAs (ESAs). These areas are shown on the Plan sheets and labeled "ESA" (e.g. ESA-Historical Boundary, ESA-Wetland Boundary). The Contractor shall install orange barrier fence as delineated in the Plans.

The Contractor shall not perform any construction related activities within areas delineated in the Plans with orange barrier fence, unless specifically stated otherwise in the Plans. This includes but is not limited to construction activities such as clearing and grubbing, borrowing, wasting, grading, filling, staging, parking, sediment basins, and equipment storage. Also, all archaeological sites, historic sites, wetlands, streams and protected habitats beyond the Right-of-Way and easement areas are deemed to be ENVIRONMENTALLY SENSITIVE AREAS and shall not be disturbed in any way.

The orange barrier fence shall remain in place until such time the Lumpkin County Public Works Department directs the fence to be removed. The cost of this work shall be included in the Bid price submitted for barrier fence which will be paid for in accordance with Specification 643.

SECTION 108- PROSECUTION AND PROGRESS

Delete the fifth paragraph from Subsection 108.01 and substitute the following:

No Subcontracts, or transfers of Contract, shall in any case release the Prime Contractor of his/her liability under the Contract and Bonds. No Subcontractor shall commence work in advance of the written approval of the Subcontract by the County. Except for certain items exempted by the governing authority of Lumpkin County, each Subcontractor shall be prequalified or registered with the Department of Transportation. Each Subcontract for a Registered Subcontractor shall not exceed $1,000,000.00 and Subcontracts for Prequalified Contractors shall not exceed their current capacity. Prequalified or Registered Subcontractors shall be qualified or registered with the Department in accordance with Chapter 672-5 of the Rules and Regulations Governing the Prequalification of Prospective Bidders adopted by the State Transportation Board.

SECTION 108- PROSECUTION AND PROGRESS
{Contractor Performs 70% of Work)

Delete paragraphs one through four of Subsection 108.01 and substitute the following:

The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract or Contracts, or any portion thereof, or of his/her right, title, or interest therein, without written consent of the Lumpkin County Public Works Department. For Subcontracts, consent of the Lumpkin County Public Works Department will not be considered until after award of the Contract.

Incase such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform, with his/her own organization, work amounting to not Jess than seventy percent (70%) of the total Contract cost, including materials, equipment, and labor.

As a further exception, any items designated as "Specialty Items" may be performed by Subcontract and the cost of any such Specialty Items so performed by Subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor with his/her own organization.

Purchase of materials by the Prime Contractor for use by a Subcontractor will not be allowed when computing the 70% requirement.

SECTION 108- PROSECTION AND PROGRESS

Retain Subsection 108.03 except as modified below:

For this project, the Progress Schedule required by Subsection 108.03 need not be submitted.

Delete subsection 108.08 in its entirety and substitute the following:

108.08 Failure or Delay In Completing Work on Time

Time is an essential element of the Contract, and any delay in the prosecution ofThe Work may inconvenience the public, obstruct traffic, or interfere with business. Inaddition to the aforementioned inconveniences, any delay in completion of The Work will always increase the cost of engineering. For this reason, it is important that The Work be pressed vigorously to completion. Should the Contractor or, in case of default, the Surety fail to complete The Work within the time stipulated in the Contract or within such extra time that may be allowed, charges shall be assessed against any money due or that may become due the Contractor in accordance with the following schedule:

Schedule of Deductions for Each Day of Overrun in Contract Time		
Original Contract Amount		Daily Charges
From More Than	To and Including	Calendar Day, Completion Date or Available
$0	$500,000	$84
$500,00	$1,000,000	$151
$1,000,000	$2,000,000	$247
$2,000,000	$5,000,000	$391
$5,000,000	$10,000,000	$713
$10,000,000	$20,000,000	$1191
$20,000,000	$40,000,000	$1869
$40,000,000	—	$5089

For each Calendar Day or Available Day, as specified, that any work shall remain uncompleted after the contract time specified for the completion of the Work required by the Contract, the sum specified in the Contract will be deducted from any money due the Contractor, not as a penalty, but as liquidated damages; provided however, that due account shall be taken of any adjustment of the contract time for completion of the work granted under the provisions of Subsection 108.07.E.

The County may waive such portions of the liquidated damages as may accrue after the work is in condition for safe and convenient use by the traveling public.

A. Liquidated Damages

The amount of such charges is hereby agreed upon as fixed liquidated damages due the County after the expiration of the time for completion specified in the Contract. The Contractor and his Surety shall be liable for liquidated damages in excess of the amount due the Contractor on the final payment.

These fixed liquidated damages are not established as a penalty but are calculated and agreed upon in advance by the County and the.Contractor due the uncertainty and impossibility of making a determination as to the actual and consequential damages which are incurred by the County as a result of the failure on the part of the Contractor to complete The Work on time.

1. Deduction From Partial Payments: Liquidated damages, as they accrue, will be deducted from periodic partial payments
2. Deduction From Final Payment: The full amount of liquidated damages will be deducted from final payment to the Contractor and/or his Surety.
3. No Liquidated Damages Charged for Delay by the County: In case of default of the Contract and the subsequent completion of The Work by the County as hereinafter provided, the Contractor and his Surety shall be liable for the liquidated damages under the Contract, but no liquidated damages shall be chargeable for any delay in the final completion of The Work due to any unreasonable action, negligence, omission, or delay of the County. In any suit for the collection of or involving the assessment of liquidated damages, the reasonableness of the amount shall be presumed. The liquidated damages referred to herein are intended to be and are cumulative and shall be in addition to every other remedy now or hereafter enforceable at law, in equity, by statute, or under the Contract.

B. No Waiver of Lumpkin County Rights

Permitting the Contractor to continue and finish The Work or any part of it after the expiration of the time allowed for completion or after any extension of time, shall not operate as a waiver of the rights of the County under the Contract.

Section 402-Hot Mix Recycled Asphaltic Concrete

Delete Section 402 and substitute the following:

402.1General Description

This work includes producing and placing hot mix recycled asphaltic concrete that incorporates reclaimed asphalt pavement (RAP), reclaimed asphalt shingles (RAS), virgin aggregate, hydrated lime, and neat asphalt cement.

402.1.1 Definitions

General Provisions 101through 150.

402.1.2 Related References

A. Standard Specifications

Section 400-Hot Mix Asphaltic Concrete Construction

Section 800-Coarse Aggregate

Section 828-Hot Mix Asphaltic Concrete Mixtures

B. Referenced Documents

SOP 41"Guidelines for RAP Stockpile Approval"

402.1.3 Submittals

A. Certified Welght Tickets

Notify the Lumpkin County Public Works Department before removing RAP from a stockpile that belongs to the County. Submit I the Lumpkin County Public Works Department the certified weight tickets of materials removed from the stockpile.

B. Affidavit

Submit to the laboratory an affidavit stating the sources of stockpiled materials to be used on a State project. Include the following information in the letter:

- State Project Number
- Location from which the material was removed
- Approximate removal dates
  - Mix types removed and the estimated quantity of each type in the stockpiles
  - Other available information about the stockpiled material such as percentage of local sand in the RAP Obtain specific approval from the laboratory to use RAP or RAS stockpiles.

Adhere to Guidelines for RAP Stockpile Approval.

402.2 Materials

A. RAP Material Composition

Use RAP materials from any of the following:

- Existing roadway
- Contractor's RAP stockpile that has been approved by the County
- County stockpile

NOTE: The location of County RAP material stockpiles will be given on the Plans.

Do not use RAP materials that contain alluvial gravel or local sand in any mixture placed on interstate projects except for mixtures used in shoulder construction. When used in shoulder construction, limit RAP containing local sand or alluvial gravel so that the sand or gravel contributes no more than 20% of the total aggregate portion of the mix.

1. RAP Percentage

For non-interstate projects, limit the percentage of RAP allowed in recycled mixes so that the overall amount of alluvial gravel does not exceed 5 percent of the total mix. The percentage of alluvial gravel, local sand, and Group I material in the RAP will be determined through petrographic analysis or available records.

RAP furnished to the Contractor but not used in the work remains the Contractor's property.

RAP used in the recycled mixtures for mainline or ramps (if applicable) may make up from 0 to 40 percent of the mixture depending on the amount of RAP available, the production facilities, and whether the mixture meets the requirements in Section 828.

The maximum ratio of RAP material to the recycled mixture is 40 percent for continuous mix type plants and 25 percent for batch type plants.

2. Process RAP Material

Process RAP material to be used in the recycled mixture so that 100 percent will pass the 2 in (50 mm) sieve. Additional crushing and sizing may be required if the RAP aggregate exceeds the maximum sieve size for the mix type as shown in Section 828. Obtain representative materials from the RAP stockpile for the mix design.

B. RAS Material

RAS materials are produced as a by-product of manufacturing roofing shingles and/or discarded shingle scrap from the reroofing of buildings.

1. Limit the amount of RAS material used in the recycled mixture to no greater than 5 percent of the total mixture weight.
2. Shred the RAS material before incorporating it into the mix to ensure that 100 percent of the shredded pieces are less than 1/2 in (12.5 mm) in any dimension.
3. Remove all foreign materials such as paper, roofing nails, wood, or metal flashing.
4. Provide test results for Bulk Sample Analysis, known as Polarized Light Microscopy, if post-consumer shingles are used to certify the RAS material is free of asbestos. Test stockpiles at the rate of one test per 1000 tons (megagrams) prior to processing. Same requirements as described for RAP material.

C. Asphaltic Concrete Removed from an Existing Roadway

Asphaltic concrete removed from an existing roadway becomes the Contractor's property unless specified otherwise on the Plans. RAP material retained by the County is designated on the Plans, and the RAP shall be stockpiled at the location specified on the Plans.

D. Local Sand and Group I Material In RAP

Use of local sand in recycled mixes is restricted as stipulated in Section 828 for the Project. However, RAP which contains local sand may be used in surface and intermediate layers of non-interstate projects so long as the RAP percentage used does not contribute more than 5% local sand to the total aggregate portion of the mix. The amount of local sand in the RAP material shall be considered when determining the percentage of local sand in the total mix.

Where Pay Items specify that Group II only aggregate is to be used, RAP which consists primarily of Group II aggregate, but contains some Group I aggregate, shall be limited such that the Group I aggregate makes up no more than 5% of the total aggregate portion of the mix. When a Blend I mix is specified, any Group I materials in the RAP will be considered when determining the Group 1 portion allowed in the total mix as specified in Subsection 828.2.A.2.

E. Asphalt Cement

Using laboratory evaluations, the County will determine the asphalt cement grade to be used in the recycled mixture. The asphalt cement shall meet the requirements of Section 820:

When the asphalt cement is blended with asphalt cement recovered from the RAP material and after tests on residue from thin film oven tests, the asphalt cement shall have a viscosity of 6,000 to 16,000 poises (600 to 1600 Pa) or as approved by the Lumpkin County Public Works Department. Recover asphalt cement from the recycled mixture to verify that the specified viscosity is being met.

If the Lumpkin County Public Works Department determines during construction that the selected asphalt cement grade is not performing satisfactorily, the County may change the asphalt cement grade in the mixture, with no change in the Contract Unit Price.

F. Recycled Mixture

The recycled mixture shall be a homogenous mixture of RAP or RAS material, virgin aggregate, hydrated lime, and neat asphalt cement. Ensure that the mixture conforms to an approved mixture design outlined in Section 828.

402.2.01Delivery, Storage, and Handling

Separate the stockpiles by· Project sources and by Group I and Group II aggregate types. Erect a sign on each stockpile to identify the source(s).

If RAP material from different project sources becomes intermixed in a stockpile, only use those materials when approved by the laboratory.

The County may reject by visual inspection stockpiles that are not clean and free of foreign materials.

402.3 Construction Requirements

402.3.1 Personnel

General Provisions 101 through 150.

402.3.2 Equipment

A. Hot Mix Plant

Use a hot mix plant for the recycling process with necessary modifications approved by the Lumpkin County Public Works Department to process recycled material. Design, equip, and operate the plant so that the proportioning, heating, and mixing yields a uniform final mixture within the job mix formula tolerances.

B. Cold Feed Bin

Proportion the RAP or RAS material using a separate cold feed bin. Ensure that the material meets the size requirements in Subsection 402.2, "Materials." The ratio of the RAP or RAS to virgin aggregate shall be controlled gravimetrically.

C. Electronic Belt Weighing Devices

Use electronic belt weighing devices to monitor the flow of RAP or RAS and the flow of virgin aggregate. For batch• type plants, the RAP or RAS portion of the mix may be weighed in a weigh hopper before incorporating it into the pugmill. The RAP shall be screened through a 2-inch maximum sized screen prior to crossing the cold feed weigh.

Ensure the amount of RAP material incorporated into the asphalt plant does not change after this final measurement is processed by the asphalt plant computer.

D. Feeders and Conveyors

Equip plants with an interlocking system of feeders and conveyors that synchronize the RAP or RAS material flow with the virgin aggregate flow. Ensure that the electronic controls track the flow rates indicated by the belt weighing devices and develop the signal to automatically maintain the desired ratio at varying production rates. Design the RAP or RAS feeder bins, conveyor system, and auxiliary bins (if used) to prevent RAP material from segregating and sticking.

402.3.3 Preparation

General Provisions 101 through 150.

402.3.4 Fabrication

General Provisions 101 through 150.

402.3.5 Construction

Follow the requirements in Section 400 for hot mix recycled asphaltic concrete production and placement, materials, equipment, and acceptance plans except as noted or modified in this Specification.

402.3.6 Quality Acceptance

The County may require additional quality control tests to determine the RAP stockpile consistency and the RAP aggregate quality. In this case, conduct at least three extraction/gradation tests from each individual source. Ensure that aggregate meets the quality standards in Section 800.

402.3.7 Contractor Warranty and Maintenance

General Provisions 101 through 150.

402.4 Measurement

Recycled asphaltic concrete mixture, complete in place and accepted, is measured in tons (megagrams). The weight is determined by recorded weights if an approved recording device is used. Or, the weight is determined by weighing each loaded vehicle on an approved motor truck scale as the material is hauled to the roadway.

402.4.01 Limits

General Provisions 101 through 150.

402.5 Payment

The work performed and the materials furnished as described in this Specification will be paid for at the Contract Unit Price per ton (megagram). Payment is full compensation for providing materials, hauling and necessary crushing, processing, placing, rolling and fmishing the recycled mixture, and providing labor, tools, equipment, and incidentals necessary to complete the work, including hauling and stockpiling RAP or RAS material.

Payment will be made under:

Item No. 402	Recycled asphaltic concrete_ mm Superpave, group-blend including bituminous materials	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete_ mm Superpave, group-blend including bituminous materials and hydrated lime	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete_ mm Superpave, group-blend, including polymer-modified bituminous materials and	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete_ mm Superpave, Type_, group- blend including bituminous materials and hydrated	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete **mm mix, group-blend,** including bituminous materials and hydrated lime	Per ton (megagram)
Item No. 402.	in (mm) recycled asphaltic concreteSunernave oroun-blend includino bituminous	Per square yard I meter\
Item No. 402	in (mm) recycled asphaltic concreteSuoeroave grouo-blend including bituminous	Per square yard lmeterl
Item No. 402	in (mm) recycled asphaltic concreteSuperpave, group-blend, including polymer-	Per square yard (meter)
Item No. 402	in (mm) recycled asphaltic concrete mm mix, group-blend, including bituminous materials and hydrated	Per square yard lmeterl
Item No. 402	Recycled asphaltic concrete patching including **bituminous materials**	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete patching including bituminous materials and hvdrated lime	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete leveling including bituminous materials	Per ton (megagram)
Item No. 402	Recycled asphaltic concrete leveling including bituminous materials and hvdrated lime	Per ton (megagram)

402.5.01 Adjustments

A. Determine **Lot** Acceptance

The control sieves used in the mixture acceptance schedule for the various types of mix are indicated below:

Control Sieves Used in the Mixture Acceptance Schedule	
Asphaltic concrete 25 mm Superpave	1/2 in., No.8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm Superpave	3/8 in., No.8 (9.5 mm, 2.36 mm) sieves and asphalt **cement**
Asphaltic concrete 12.5 mm Superpave	3/8 in., No.8 (9.5 mm, 2.36 mm) sieves and asphalt **cement**
Asphaltic concrete 9.5 mm Superpave	No.4, No.8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 4.75 mm Mix	No.8 (2.36 mm) sieve and asphalt **cement**

The County will perform the following tasks:

5. Determine the mean of the deviations from the job mix formula per test results per lot.

2. Determine this mean by averaging the actual numeric value of the individual deviations from the job mix formula;
disregard whether the deviations are positive or negative amounts.

B. Calculate Pavement Mean Air Voids

The County will determine the percent of maximum air voids for each lot by dividing the pavement mean air voids by the maximum pavement mean air voids acceptable.

C. Asphaltic Concrete for Temporary Detours

Hot mix asphaltic concrete placed on temporary detours that will not remain in place as part of the permanent pavement does not require hydrated lime. Hot mix used for this purpose is paid for at an adjusted Contract Price. The payment for this item shall cover all cost of construction, maintenance and removal of all temporaty mix. Hot mix asphaltic concrete placed as temporary mix shall meet requirements established in Subsection 400.3.05.F.

Where the Contract Price of the asphaltic concrete for permanent pavement is let by the ton (megagram), the Contract
Price for the asphaltic concrete placed on temporary detours is adjusted by subtracting $0.75/ton ($0.85/mg) of mix used.

Where the Contract price of the mix in the permanent pavement is based on the square yard (meter), obtain the adjusted price for the same mix used on the temporary detour by subtracting $0.04/yd2 ($0.05/ ro2) per l-in (25-mm) plan depth.

Further price adjustments required in Subsection 400.3.06. "Quality Acceptance." are based on the appropriate adjusted Contract Price for mix used in the temporary detour work. Hot mix asphalt produced as temporary mix containing no hydrated lime, when required in the permanent mix, shall be removed and replaced with permanent mix containing hydrated lime.

D. Determine Lot Payment

If the Lumpkin County Public Works Department determines that the material is not acceptable to leave in place, remove and replace the materials at the Contractor's expense.

SECTION 413- BITUMINOUS TACK COAT- OFF SYSTEM

Delete Section 413 and substitute the following:

413.1 **General Description**

This work includes furnishing and applying a bituminous tack coat on a prepared road surface including cleaning the road surface.

413.1.1 **Definitions**

General Provisions 101 through 150.

413.1.2 **Related References**

A. **Standard Specifications**

Section 109-Measurement and Payment
Section 400-Hot Mix Asphaltic Concrete Construction Section 424-Bitmninous Surface Treatment
Section 427-Emulsified Asphalt Slurry Seal
Section 820-Asphalt Cement
Section 822 –Emulsified Asphalt
Section 824- Cationic Asphalt Emulsion

B. Referenced Documents

General Provisions 101 through 150.

41.3.1.03 Submittals

General Provisions 101 through 150.

413.2 Materials

Ensure that materials meet the following Specifications:

Material	Section
Asphalt cement, performance-grade PG 58-22, PG 64-22, or PG 67-22	820.2.01
Anionic emulsified asphalt NTSS-1HM	822.2.01
Cationic emulsified asphalt CRS-2h or CRS-3	824.2.01

Asphalt cement of performance grade PG 58 22,PG 64-22 or PG 67-22 is used for bituminous tack coat in work performed in Section 400.

413.2.01 Delivery, Storage, and Handling

General Provisions 101through 150.

Emulsified Asphalt

Maintain all equipment used for the delivery,storage,and handling of anionic emulsified asphalt or cationic emulsified asphalt to prevent contamination of the emulsion. Transfer anionic emulsified asphalt or cationic emulsified asphalt directly to the pressure distributor from the transport tanker.

Provide and maintain temperature measuring devices to continuously monitor the temperature of anionic emulsified asphalt or cationic emulsified asphalt in storage and in the pressure distributor. Do not allow anionic emulsified asphalt or cationic emulsified asphalt to freeze.

Note 1: Do not store anionic emulsified asphalt or cationic emulsified asphalt for a period longer than 30 days from the time of initial loading.

Note 2: Do not use anionic emulsified asphalt or cationic emulsified asphalt on GDOT funded Off System Projects after 30 days of initial loading.

413.3 Construction Requirements

413.3.01Personnel

General Provisions 101through 150.

413.3.2 Equipment

Provide equipment in good repair,including the following units that meet the requirements of Subsection 424.3.02, Equipment."

- Power broom and blower
- Pressure distributor

Provide a dedicated pressure distributor for anionic emulsified asphalt NTSS-1HM to avoid contamination with incompatible materials.

413.3.3 Preparation

General Provisions 101through 150.

413.3.4 **Fabrication**

General Provisions 101 through 150.

413.3.5 **Construction**

A. **Seasonal and Weather limitation**

Do not apply tack coat if the existing surface is wet or frozen. Do not place emulsified asphalt if the air temperature in the shade is less than 40 °F (4 °C},

s. **Application**

Coat the entire areas to be paved with the tack coat unless directed otherwise by the Lumpkin County Public Works Department. Apply tack coat with distributor spray bars instead of hand hoses, except in small areas that are inaccessible to spray bars.

The Lumpkin County Public Works Department will determine the application rate for anionic emulsified asphalt or cationic emulsified asphalt which must be within the following limitations:

Application Rates for Anionic Emulsified Asphalt or Cationic Emulsified Asphalt, gal/yd2 (Um2)		
Type Mix	Minimum	Maximum
All Mixes except OGFC and PEM	0.06 (0.270)	0.10 (0.450)
• On thin leveling courses and freshly placed asphaltic concrete mixes, reduce the application rate to 0.04 to 0.06 gal/yd2 (0.180 to 0.270 Um2). • Allow anionic emulsified asphalt or cationic emulsified asphalt to cure for a minimum of 30 minutes after initial application. Proceed with paving only after the anionic emulsified asphalt NTSS-1HM has cured to the satisfaction of the Lumpkin County Public Works Department. • Do not use anionic emulsified asphalt or cationic emulsified asphalt under OGFC or PEM.		

NOTE: ONLY ASPHALT CEMENT WILL BE USED ON THIS PROJECT. NO ANIONIC EMULSIFIED <u>OR CATIONIC EMULSIFIED ASPHALT ALLOWED.</u>

c. **Temperature of Material**

Apply bituminous materials within the temperature ranges specified below.

Bituminous Materials	Temperature of Application •F ("C)
Asphalt cement	350-400 (175- 205)

GRS A	14Q 18Q (6Q 8Q)
Anionic Emulsified Asphalt NTSS-lHM	140-180 (60- 80)
Cationic Emulsified Asphalt CRS-2h or CRS-3	140-180 (60- 80)

o. **Cleaning**

Immediately before applying the tack coat, clean the entire area free of loose dirt, clay, and other foreign materials.

E. **Application Rate**

The Lumpkin County Public Works Department will determine the application rate of the bituminous tack coat.

F. **Limitations and areas Coated**

Apply only enough tack coat to the prepared road surface that can be covered with the new pavement course the same working day the tack coat is applied

G. **Maintenance and Protection**

After applying the tack coat material, allow it to break until it is tacky enough to receive the surface course. Do not allow traffic on the tack.

413.3.6 Quality Acceptance General Provisions 101 through 150.

413.3.7 Contractor Warranty and Maintenance General Provisions 101through 150.

413.4 Measurement

Bituminous materials for tack coat applied and accepted are measured as outlined in Subsection 109.02, "Measurement of Bituminous Materials."

Diluting emulsified tack coat is not ordinarily allowed except when used underneath slurry seal. The composition of diluted emulsified tack coat defined in Subsection 427.3.05, "Construction" is measured by the gallon (liter) of diluted mix.

413.4.01 Limits

General Provisions 101 through ISO.

413.5 **Payment**

The accepted volume of bituminous material will be paid for at the Contract Unit Price per gallon (liter) for bituminous tack coat of the type and grade approved by the Lumpkin County Public Works Department, complete in place. Payment is full compensation for preparing, cleaning, furnishing, hauling, applying material, and providing incidentals to complete the work.

Payment will be made under:

Item No.	Bituminous tack coat	Per gallon (liter)
Item No.	Diluted emulsified asphalt tack	Per gallon (liter)

Section 424-Bituminous Surface Treatment

424.1 General Description

This work includes placing one or more applications of bituminous material and aggregate on a previously prepared base or pavement.

424.1.01 Definitions

- Single Surface Treatment: One application of bituminous material that is covered with aggregate.
- Double Surface Treatment: A bituminous material application that is covered with aggregate of the size specified in the proposal followed by a second bituminous material application that is covered with a second specified size aggregate.
- Triple Surface Treatment: A bituminous material application that is covered with a specified size aggregate followed by subsequent applications of bituminous material that are covered with successively smaller size nominal aggregates.

424.1.02 Related References

A. Standard Specifications

Section 105--Control of Work

Section 800-Coarse Aggregate

Section 820-Asphalt Cement

Section 824-Cationic Asphalt Emulsion

B. Referenced Documents

QPL65

424.1.03 Submittals

General Provisions 101 through 150.

424.2 Materials

A. Bituminous Material

Select the bituminous material from any type and grade listed in the materials table below. NotifY the Engineer at least 10 days before ordering the bituminous materiaL The Engineer must approve the bituminous material choice.

For a list of latex sources, see OPL 65.

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Asphalt Cement, Perfon11ance Grade PG 58-22 or PG 64-22•	820.2.01
Cationic Asphalt Emulsion, Grade CRS-2h or CRS-3•	824.2.01
Coarse Aggregate, Class A Crushed Stone or Crushed Slag, Group I or II	800.2.01
• Use PG 64-22 or CRS-3 only at the Engineer's direction. (See Subsection 424.3.05.8.)	

B. Aggregates

The size and group of aggregates used in the surface treatment are specified in the Proposal under the appropriate Line Item.

Do not use unconsolidated limerock unless provided for in the Plans or Proposal.

Use Class B aggregates only where the surface treatment is used for shoulder construction or where it is to be overlaid with asphaltic concrete.

424.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

424.3 Construction Requirements

424.3.01 Personnel

General Provisions 101 through 150.

424.3.02 Equipment

Have the Engineer approve equipment types and quantities before using equipment on the Project.

Ensure that the equipment used to construct the surface treatment:

- Produces work that complies with the standards in this section
- Is on the Project and in proper working order before construction begins

A. Aggregate Spreader

The Department wi1l inspect annually the aggregate spreader before it is used in the work. If the spreader is approved, the Depa11ment will attach an equipment certification sticker to the spreader.

Use a self-propelled aggregate spreader that can apply aggregate at the desired rate uniformly and accurately without corrugation, overlaps, or excess deficient areas.

Ensure that the spreader can spread courses to the required widths. Provide spreaders to promptly cover the full width of the asphalt application.

B. Pressure **Distributor**

The Department will inspect annually the pressure distributor before it is used in the work. If the distributor is approved, the Department will attach an equipment certification sticker to the distributor. The pressure distributor should be equipped as follows:

1. Mount the pressure distributor on pneumatic tires wide enough to prevent damage to the road surface.
2. Design, equip, maintain, and operate the distributor so that the bituminous material will be heated and applied evenly throughout the length of the spray bars. Ensure that it maintains a constant, uniform pressure on the nozzles.
3. Install screens between the tank and the nozzles and clean them frequently to prevent clogging.
4. Use an adjustable distributor that can deliver controlled amounts of bituminous material from 0.04 to 1.0 gallyd^2.± 0.02 gal/yd'(0.18 to 4.53 Lim',± 0.10 Lim') up to 24ft (7.2 m) wide without atomization, streaking, or pulsation in the flow.
5. Use a distributor equipped with the following:
    - A tachometer and thermometers to indicate the application rate and the temperature of the tank contents
    - Measuring devices to accurately indicate the amount of bituminous material, in gallons (liters}, in the distributor before and after each application
    - Full circulating spray bars that can be adjusted laterally to conform to a string line and capable of vertical and horizontal adjustment.
    - A positive shut-off control to prevent dripping bituminous material on the roadway

Section 424--Bituminous Surface Treatment

- A distributor tank equipped with a sample valve in a safe and convenient location to obtain bituminous material samples

C. Heating Equipment

Ensure that heating equipment will heat and maintain the bituminous material uniformly at the temperature required. Provide an accurate thermometer.

D. Smooth-Wheeled Rollers

Use self-propelled, tandem-type smooth-wheeled rollers that can be alternated with pneumatic-tired wheels. The rollers shall weigh from 3 to 8 tons (3 to 7 Mg). Ensure that the roller weights within these limits can properly compact the materials.

E. Pneumatic-Tired Rollers

Use self-propelled pneumatic-tired rollers with treads that will not dish1rb the aggregates. Rollers with pneumatic-tired wheels that can be alternated with a steel drum are also permitted.

F. Power Broom and Power Blower

Provide at least one power broom and one power blower, or a combination power broom and blower, that can remove dust or loose materials from the road surface.

424.3.03 Preparation

Firmly compact, finish, and prime new bases. Ensure that the bases conform to the lines, grades, and cross sections within the tolerances specified.

A. Removing Foreign Material

Use power brooms, power blowers, hand brooms, or other means to remove loose material, dust, dirt, clay, and other materials that prevent bituminous materials from adhering to the base.

Take special care to clean the outer edges thoroughly. Where necessary, use a motor grader blade to remove excess material off the paving edge.

B. Condition of Prime

Check the condition of prime as follows:

1. Ensure the prime is cured before placing the mat course.
2. Repair the prime if it is loose, soft, unbonded, removed, or damaged.
3. Remove concentrations of excess prime.
4. Perform additional rolling with a pneumatic-tired roller before surface treatment when directed by the Engineer.

424.3.04 Fabrication

General Provisions 101 through 150.

424.3.05 Construction

A. Observing Seasonal and Weather Limitations

Apply bituminous surface treatment and corresponding bituminous materials only between the dates given in Table 1, below. The dates are given by zones shown on the Georgia Geographic Map, below

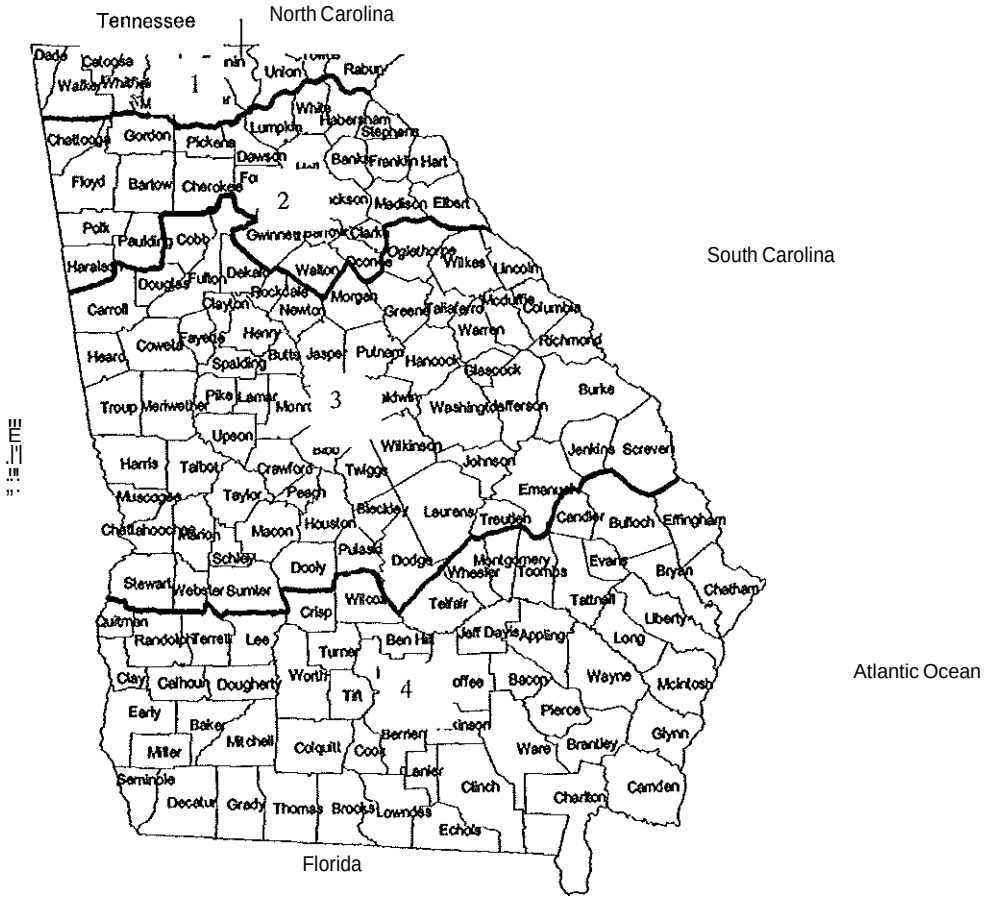
No exceptions are permitted except as authorized by the Engineer.

Table 1-Surface Treatment Seasonal Restrictions

Zone	Asphalt Cement	Emulsified Asphalt
1	May 1-September 15	Aprii1Q-September 15
2	Aprii15-0ctober 5	Aprii1-0ctober 5
3	Aprii1G-October 20	March 25-Qctober 20
4	Aprii1-November 1	March 15-November 1

Do not apply asphalt cement to a wet surface or when the temperature is below 65 °F (18 °C). Never apply emulsions if the temperature is below 55 op (13 °C).

tNoTE: **If** hot mix asphaltic concrete will be applied over the surface treatment, the Engineer may waive the seasonal and temperature limitations providing that traffic is not permitted on the surface treatment until **it** is covered with hot mix asphaltic concrete.



Georgia Department of Transportation Geographical Map
For Surface Treatment and Slurry Seal

B. Using PG 64-22 or CRS-3

Only use PG 64-22 or CRS-3 when directed by the Engineer due to a problem with excessive aggregate pickup during high ambient temperature.

C. Observing Sequence of Operations and Quantities of Materials

The sequence of operations and quantities of materials are shown in Table 2 (Table 2-metric).

The Engineer will determine the material quantities to be used during construction and may change the minimum or maximum application rate of any course during construction if the total quantities are within the amounts shown in Table 2 (Table 2·-metric), Any deviation, or minus from the table quantities, will require a negotiated adjustment of the Contract price, which will be authorized by an approved Supplemental Agreement.

D. Heating Bituminous Material

Evenly heat the entire mass of bituminous material for each application under positive control. While the material is being applied, maintain it within the specified temperature range.

Section 424-Bituminous Surface Treatment- Table 2

Application	Type Construction									
	Single				Double			Triple		
Stone Sizes 1st appl.		#89	#7	#8		#7	#8		#8	#5
Stone Sizes 2nd appl.						#89	#7		#7	#7
Stone Sizes 3rd appl.									# 89	#89
	Control Tolerance				Control Tolerance			Control Tolerance		
1st Application Bituminous Materials (gaUyd•) PG 58-22 or PG 64-22	±.02	.17-.19	.18-.25	.22-.30	±.02	.20-.27	.26-.34	±.02	.20-.30	.24-.34
CRS-2h, CRS-3	±.02	.20-.22	.21-.29	.25-.35	±.02	.23-.32	.30-.40	±.02	.23-.35	.28-.40
1st Application Stone (ft'lyd')	±.03	.14-.18	.18-.26	.30-.42	±.03	.18-.26	.30-.42	±.03	.30-.42	.41-.53
2nd Application Bituminous Materials (gallyd PG 58-22 or PG 64-22					±.02	.18-.24	.24-.31	±.02	.20-.27	.20-.27
CRS-2h, CRS-3					±.02	.21-.28	.28-.36	±.02	.23-.32	.23-.32
2nd Application Stone (ft'/yd•)					±.03	.14-.18	.18-.26	±.03	.18-.26	.18-.26
3rd Application Bituminous Materials (gal/yd PG 58-22 or PG 64-22								±.02	.18-.24	.18-.24
CRS-2h, CRS-3								±.02	.21-.28	.21-.28
3rd Application Stone (ft'/yd								±.03	.14-.18	.14-.18
Total Bituminous Materials (ga1/yd^2) PG 58-22 or PG 64-22	±.02	.17-.19	.18-.25	.22-.30	±.03	.38-.51	.50-.65	± .04	.58-.81	.62-.85

Application	Type Construction									
	Single				Double			Triple		
CRS-2h, CRS-3	±.02	.20-.22	.21-.29	.25-.35	±.03	.44-.60	.55-.76	±.04	.67-.95	.72-1.0
Total Stone (ft'/yd9	±.03	.14-.18	.15-.26	.30-.42	±.04	.32-.44	.48-.68	±.05	.62-.86	.7:>-.97

Notes:

- The bituminous material and stone for each application may be varied by the Engineer, at no increase in cost, outside of the minimum or maximum shown in the table provided the total of the materials is within the limits of the total minimum and total maximum of an courses.
- Maintain the control tolerances shown above or stop the work until the necessary corrections are made.
- Apply at least one seal coat to the mat course on the same day when multiple applications are specified.

Section 424-Bituminous Surface Treatment- Table 2 (Metric)

Application	Type Construction									
	Single				Double			Triple		
Stone sizes 1st appl.		#89	#7	#6		#7	#6		#6	#5
Stone sizes 2nd appl.						#89	#7		#7	#7
Stone sizes 3rd appl.									#89	#89
	Control Tolerance				Control Tolerance			Control Tolerance		
1st Application Bituminous Materials (Urn') PG 58-22 or PG 64-22	±.09	.77-.86	.82-1.13	1.00-1.36	.09	.91-1.22	1.15-1.54	.09	.91-1.36	1.09-1.54
CR5-2h, CRS-3	±.09	.91-1.00	.95-1.31	1.13-1.58	-09	1.04-1.45	1.36-1.81	.09	1.04-1.58	1.27-1.81
1st Application Stone (m'/m:!)	± .001	.005-.0060	.006D-.009	.01-.014	.001	.006-.009	.01-.015	.001	.01-.014	.14-.018
2nd Application Bituminous Materials					.09	.82-1.09	1.09-1.40	.09	.91-1.22	.91-1.22

Application	Type Construction									
	Single				Double			Triple		
(Um²) PG 58-22 or PG 64-22										
CRS-2h, CRS--0					.09	.95-1.26	1.27-1.63	.09	1.04-1.45	1.04-1.45
2nd Application Stone (m³/m²)					001	.005-.006	.006-.009	1t .001	.006-.009	.006-.009
3rd Application Bituminous Materials (UmPG 58-22 or PG 64-22								.09	.82-1.09	.82-1.09
CR5-2h, CRS--0								.09	.95-1.27	.95-1.27
3rd Application Stone (m"/m2)								.001	.005-.006	.005-.006
Total Bituminous Materials (Um²) PG 58-22 or PG 64-22	±.09	.77-.86	.82-1.13	1.00-1.36	.14	1.72-2.31	.26-2.94	.18	2.63--0.67	2.81-4.53
CRS-2h, CRS--0	±.09	.91-1.00	.95-1.31	1.13-1.58	.14	1.99-2.72	2.63--0.44	.18	3.04-4.30	3.26-4.53
Total Stone (m!lfm2)	± .001	.005-.006	.006-.009	.01-.014	.0013	.011-.015	.016-.024	.0016	.021-.029	.026-.033

Notes:

- The bituminous material and stone for each application may be varied by the Engineer, at no increase in cost, outside of the minimum or maximum shown in the. Table provided the total of the materials is within the limits of the total minimum and total maximum of all courses.
- Maintain the control tolerances shown above or stop the Work until the necessary corrections are made
- Apply at least one seal course to the mat course on the same day when multiple applications are specified.

E. Applying Bituminous Material

The following arc temperatures at which bituminous material shall be applied.

Bituminous Material	Asphalt Cement	CRS-2h	CRS-3
Application temperature OF rc)	275-350 (135-175)	140-180 (60- 80)	140-180 (60-- 80)

NOTE *1:* Do not store emulsified asphalts at temperatures exceeding 150 °F (65 °C) for any extended time.

NOTE 2: Do not place bituminous surface treatment on fresh asphaltic concrete, except for paved shoulders, until the asphaltic concrete has been in place at least 30 days.

The Engineer will designate the maximum area to which bituminous material may be applied at one time. Apply the material as follows:

1. After applying the bituminous material to the section, immediately cover it with the correct application rate of aggregate before beginning the next section.

   Do not apply the bituminous material to the full width of the pavement unless the aggregate spreader can immediately cover the full width of the applied material.

   NOTE: Never allow bituminous material to chill, set up, dry, or reach a condition that impairs the retention of cover aggregate before the aggregate is applied.

2. When a longitudinal joint is necessary:
   - Do not overlap the applications more than 4 in (100 mm).
   - Do not leave any area uncovered.
   - Never allow excess quantities of bituminous materials to build up.
3. On curves that require widening:
   a. Shoot the extra width on the outside first.
   b. Shoot the normal width with the distributor and follow the inside paving edge.
4. Ensure that the spray of bituminous material is uniform at all times. If the spray is not uniform:
   a. Stop the work.
   b. Change equipment, persom1el, or methods to attain the required uniformity.
   c. Apply bituminous material at one-half the width of the roadway, if necessary.
5. If streaking develops:
   a. Stop the distributor and correct the problem before proceeding.
   b. Use a hand hose or a hand pouring pot to cover the streaked areas at approximately the same application rate of bituminous material.
6. If a part of the work cannot be reached by the distributor, treat it by hand hoses with nozzles.
7. Protect curbs, gutters, handrails, and other structures from discoloration by the bituminous material. Remove bituminous material that is sprayed or spilled on these structures.
8. Ensure that the bituminous material joins neatly in place by beginning and ending the asphalt application from a heavy paper or tight trough that is longer than the width of the treatment being applied. Place it to catch and hold the surplus material.
9. When cleaning and emptying the distributor, empty it where the bituminous material can be covered with di1t and completely disposed of without damaging the Rights-of-Way.

F. Spreading Aggregates

Spread the aggregates as follows:

1. Ensure that aggregates do not contain free moisture when spread.
2. Apply aggregate immediately after applying bituminous materials.
3. Uniformly spread the aggregate at the specified rate without corrugations, overlaps, excess, or deficient areas.
4. Move the spreader at a uniform speed, regardless ofthe grade.
5. Ensure that the distance that the aggregate free falls remains constant during spreading.
6. Remove corrugations. Operate the spreader to prevent overlap of aggregates. If overlap occurs, remove the excess aggregate before rolling.
7. Ensure a uniform aggregate spread by hand spotting and brooming as necessary.

G. Rolling

Select a rolling pattern and speed that will thoroughly key the aggregate into the bituminous material. The Engineer must approve the pattern and speed.

If a steel wheel roller will fracture the aggregate, use pneumatic-tired rollers only.

H. Brooming

Use a revolving broom as necessary, supplemented by hand brooming, to remove or redistribute excess stone. Take care not to unseat bonded stone when brooming.

I. Controlling Traffic

Do not allow traffic on an individual course until the bituminous material has cooled or set enough to ensure that the aggregates will not be loosened, dislodged, or whipped off by slow-moving traffic.

\Vhen traffic is permitted back on the course, the Engineer will determine the speeds and specifY the control devices to limit the speed. Continue this control until the Engineer permits the road to be opened for general traffic.

424.3.06 Quality Acceptance

General Provisions 101 through 150.

424.3.07 Contractor Warranty and Maintenance

Maintain and protect the surface course as specified in Section 105 until the Project has been accepted. Make repairs as the Engineer directs. The cost of maintenance, protection, and repair is included in the Unit Prices Bid for the Item for which they apply.

424.4 Measurement

The area to be measured is the number of square yards (meters) of each type surface treatment completed and accepted.

424.4.01 Limits

The length is measured along the surface. The width is specified on the Plans, plus or minus any authorized changes. Irregular areas are measured by the surface square yard (meter) within the lines shown on the Plans or authorized changes.

424.5 Payment

The accepted area of surface treatment will be paid for at the Contract Unit Price per square yard (meter) complete for each type and stone size specified.

Payment will be made under:

Item No. 424	Single surface treatment stone size_group_ (meter}	Per square yard
Item No. 424	Double surface treatment stone size_and_group_	Per square yard (meter)
Item No. 424	Triple surface treatment stone sizes_,_ and_, group_	Per square yard (meter)

424.5.01 Adjustments

If a supplemental agreement is approved, payments will be adjusted as per the Contract Unit Price.

PAINT MARKINGS

Paint Markings on the complete project shall be done as indicated on the plans and shall meet the requirements for dimensions as outlined in the FAA most recent Advisory Circular. Material specifications shall be 1952D.

SECTION 802- AGGREGATES FOR ASPHALTIC CONCRETE

Delete Subsection 802.2.01.A.5.

SECTION 820- ASPHALT CEMENT

Delete Section 820 and substitute the following:

820.1 General Description

This section includes the requirements for asphalt cements prepared from crude petroleum.

820.1.1 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

Standard Operating Procedure (SOP 4) MSHTOR28 AASHTOT48
MSHTOT 179
AASHTOT240 AASHTO T
313
MSHTOT 314
MSHTOT 315
MSHTOT 316
AASHTO TP70 (proposed) / ASTM D7405

820.2 Materials

820.2.1 Asphalt Cement

A. Requirements

I. Type

Use a material homogenous and water-free and will not foam when heated to 347 op (175 "C).

Ensure that a blend used to produce a specified performance grade meets the following requirements:

- Is uniform and homogeneous without separation
- Uses PG 64-22 or PG 67-22 described below for the base asphalt
- Consists of production materials not being "air-blown or acid modified" to achieve the performance grade

2. Grade

Use the various grades of asphalt cement meeting the requirements shown in the test requirements for Petroleum Asphalt Cements

Add only Styrene-Butadiene-Styrene (SBS) or Styrene-Butadiene (SB) to neat asphalt to produce a binder meeting requirements for PG 76-22.

For non Stone Matrix Asphalt Mixtures (SMA) and porous (PEM or OGFC) mixes, SBR or Crumb rubber modified PG 76-22 is an acceptable alternative to SBS or SB modified asphalt cement at contractor's discretion, provided the SBR or crumb rubber modified asphalt cement meets the tests' requirements ofPG 76-22. For SBR modified PG 67-22 to meet PG 76-22, use only SBR currently approved on QPL-65"Georgia's List of Approved Latex Suppliers". For crumb rubber modified PG 67-22 to meet PG 76-22, use 30 mesh size ambient or cryogenic ground tire rubber at minimum 10% of weight of total asphalt cement content. Percentage of ambient or cryogenic ground tire rubber is neat asphalt source dependent to meet specification requirements for PG76-22. Ensure Trans-Polyoctenamer be added at 4.5% of the weight of the crumb rubber to achieve better particle distribution. The maximum Phase Angle requirement is not applicable to the crumb rubber modified PG 76-22 (see notes f and g).

Test Requirements for Petroleum Asphalt Cements

Test And Method	Test Ternp erature				Original Binder	Residue Of Binder After:	
	PG 58 22	PG 64 22	PG 67 22	PG 76 22		RollingThin Film Oven,AASHTO:T240	Pressure Aging AASHTO: R28
FlashPoint,Min., AASHTOT48					446'F (230 'C)		
Vi"scosity,Max.,AASHTOT 316, (Notea)	27SOF(13S'C)				**3Pa-S** (3000CP)		
Mass loss(%), Max., MSHTO T 240, (Note b)						0.5	
Dynamic Shear, G*/sin .AASHTOT315, lQRad/Sec	136'F (58 'C)	147'F(64 'C)	1530F(67 'C)	169_'F (76 'C)	**l.OkPa**	**2.2kPa**	
Dissipated Energy, DynamicShear,G*sin. AASHTOT315, **10Rad/Sec**	720F(22 'C)	770F(25 'C)	800F(26.5 'C)	880F .(31'C)			_::5000kPa
CreepStiffness, 60sec.,AASHTOT 313, (Notec)	10oF(-12'C)						**S_::300000kPa m >** 0.300
DirectTension,1.0 mm/min., AASHTO · T314, FailureStrain	10'F I-12'C)						**Report**
Multiple Stress Creep& Recovery (MSCR)test, ASTM D740S,AASHTO TP70 (proposed),Jnr3.2 kPa,(Noten(Noteg)				**64oc**		.::_1.0	

Notes:

a. The County may waive this requirement if the supplier warrants the asphalt binder can be adequately pumped and mixed at temperatures meeting all applicable safety standards.

b. Heat loss by AASHTO: T 179 may be accepted in lieu of mass loss by AASHTO: T 240.

c. If the creep stiffness is below 300 000 kPa, the direct tension test is not required. If the creep stiffness is?. 300 000 kPa, report the Direct Tension Failure Strain value. Satisfy them-value requirement in either case. d. The maximum Phase Angle measured by DSR shall be 75 degrees.

e. The maximum Mass Loss shall be 1%, when used in conjunction with Bituminous Surface Treatment (Section 424).

f. MSCR requirement is applicable to the SBR, Crumb Rubber & TOR combination modified PG PG76-22 asphalt cement. Additionally, they shall meet all PG 76-22 requirements except for phase angle.

g. Percent recovery at 3.2 kPa shall be.? 35%.

Thoroughly blend the composite materials at the supply facility prior to being loaded into the transport vehicle if modification is required. Ensure all blending procedures, formulation, and operations are approved by the Office of Materials and Research.

3. Certification:

Provide certified test results from an approved, certified laboratory of blends for proposed PG asphalt for each specification characteristic of the asphalt cement proposed for shipment. Provide the certified results to the State Materials and Research Lumpkin County Public Works Department as required in Standard Operating Procedure (SOP 4).

B. The State Materials and Research Lumpkin County Public Works Department may interrupt production until test r

Materials Warranty

General Provisions 101through 150.Results are known in the event there is reason to suspect a sample will be outside specification limits.