

Project Manual

Specifications

Lumpkin County

Leveling and Resurfacing Of Various County Roads

Project# 2019-009-ITB

LMIG-02-(187) Lump

Modifications & Additions to the Specifications

Project# 2019-009-ITB / LMIG-02-(187) Lump

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

Prompt Payment

Utility Conflicts

LMIG Projects - General

Construction Details (Resurfacing & Widening) (State)

Sec. 107 - Legal Regulations and Responsibility to the Public

Sec. 108- Prosecution and Progress (4) (failure or Delay in Completing Work on Time)

Sec. 109 – Measurement and Payment (2)

Sec. 149-Construction Layout Eliminated

Sec. 150 - Traffic Control

Sec. 400- Hot Mix Asphaltic Concrete Construction (Off System)

Sec. 402- Hot Mix Recycled Asphaltic Concrete (Off System)

Sec. 413 - Bituminous tack Coat

Sec. 652 - Painting Traffic Stripe

Sec. 802 - Aggregate for Asphaltic Concrete

Sec. 819- Fiber Stabilizing Additives

Sec. 820 - Asphaltic Cement

Sec. 883 - Mineral Filler

Special Provisions

Prompt Payment:

Prime Contractors, who sublet a portion of their work, shall pay their subcontractors for satisfactory performance of their contracts no later than 10 calendar days from receipt of each payment made to them.

Any delay or postponement of payment among the parties may take place only for good cause with prior written approval from the County.

If the contractor is found to be in noncompliance with these provisions, it shall constitute a breach of contract and further payments for any work performed may be withheld until corrective action is taken. If correction action is not taken, it may result in termination of the contract.

All subcontract agreements shall contain this requirement.

Utility Conflicts:

Utility companies having known facilities that conflict with the construction of this project will be directed by the County to adjust or relocate their facilities and will be notified of the contract award.

Conform to all the requirements of the Specifications as they relate to cooperation with utility owners and the protection of utility installations that exist on the project. Refer to the requirements of Section 107, Legal Regulations and Responsibility to the Public, with particular attention to Subsection 107.21.

Coordinate the work with any work to be performed by other in any right of way clearance and arrange a schedule of operations that will allow for completion of the Project within the specified contract time. Where stage construction is required, notify the utility worker when each stage of work is completed and the site is available for utility work to proceed.

Information concerning utility facilities known to exist within the project limits, including the list of owners, is available for reference.

Under Georgia Code Section 32-6-171, utilities are required to remove or relocate their facilities. The County is required to give the utility at least 60 days written notice directing the removal, relocation or adjustment and the utility owner is required to begin work within the time specified in the utility's work plan or revised work plan.

Upon request, copies of all agreements with utility companies having facilities on this project will be made available for examination by the Contractor at the Georgia D.O.T. District Office. Utility Adjustment Schedules, when submitted to the County by the utilities, will be made available to the Contractor after the Notice to Contractors has been posted by the Office of Construction Bidding Administration. The Utility Adjustment Schedules are available on the Office of Construction Bidding Administration's web site. Utility Adjustment Schedules may be included with the Utility Special Provision in the Contract Proposal on select projects. The Contractor is responsible for considering in its bid all existing and proposed utility locations and the removals, relocations, and adjustments specified in the Utility's Work Plan.

For this Project, Utility Owners that are required to remove, relocate, or adjust their facility to accommodate the construction of this Project may be liable to the Contractor for damages or delay costs resulting from the Utility Owner's failure to clear conflicts within the time specified in the approved Utility Work Plan. If the Utility Owner is unable to submit and obtain County approval of a revised Work Plan or fails to complete the removal, relocation, or adjustment of its facilities in accordance with the approved Work Plan, the Utility Owner may be liable to the County, or the Contractor, for damages or delay costs.

In accordance with Subsection 105.06 of the Specifications, the County is not liable for payment of any claims due to utility delays, inconvenience or damage sustained by the Contractor due to interference of any utilities or appurtenances, or the operation of moving them.

Whenever the Contractor considers that it is or will be entitled to damages or delay costs from the Utility Owner in accordance with O.C.G.A. 32-6-171, the Contractor shall provide written notice to the Utility Owner and the County within ten (10) days from the time of the dispute or potential dispute is identified. The Contractor shall follow the Procedures for Utility Damages or Delay Costs outlined in the latest edition of The Utility Accommodation Policy and Standards Manual. Failure to follow the above will result in waiver of the Contractor's claim against the Utility Owner for damages or delay costs.

In accordance with Subsection 107.21.G delays by utilities will continue to be considered by the County in charging Contract Time. For purposes of applying provisions of this paragraph, railroads and the Metropolitan Atlanta Rapid Transit Authority (MARTA) are considered utilities.

LMIG Projects – General

The County will be responsible for lowering the shoulders and ditches to an elevation, that will provide an adequate drainage, and for completing all necessary patching.

The Contractor will be responsible for all necessary cleaning of the existing pavement including clipping of shoulders required prior to cleaning and resurfacing. Remove or spread the material displaced over the shoulders as directed by the Lumpkin County Public Works Department. Include the cost of this work in priced bid for other items.

Lumpkin County will not participate in the cost of any utility facility removal and relocations necessary in connection with the construction of this project.

Others will perform re-grading and grassing of shoulders after paving work is completed.

Construction Details for Resurfacing and Widening Projects

A. General

Perform according to Specifications, Special Provisions, Plan details and the applicable portions of Section 400.

The provisions of Sections 104 and 105 apply when patching operations necessitate traffic control in construction areas.

B. Spot Patching and Replacement of Existing Base

1. Complete all removal and patching operations at any one site within the same day.
2. Hand spreading and compaction using mechanical tampers will be required in areas inaccessible to conventional equipment.
3. Patching is paid for according to the Plans and Proposal. Payment includes all removal and replacement work necessary to complete the Item.

C. Shoulders

No shoulder construction will be required on Projects that have no widening or new shoulder paving, except where additional shoulder work is shown on the Plans.

For Projects involving pavement widening or paved shoulder construction, the cost of trenching and shoulder construction or reconstruction of the existing shoulders is included in the overall bid submitted.

Ensure trenching and shoulder construction conforms to the following requirements:

1. Trenching consists of the removal, satisfactory disposal and replacement of existing shoulder materials. Ensure trench dimensions are according with Plan details.

Remove and dispose of all materials excavated from the trench widening operation. Excess materials are to be disposed of at an approved soil disposal site. Compact subgrade under widening sections to 95% of the theoretical density as determined by GDT7, GDT67, or GDT24.

2. Where trenching is necessary for widening or paved shoulder construction, complete all operations at any one site to the level of the existing pavement in the same working day.
3. Perform widening operations on only one side of the existing traveled roadway at a time within anyone-half- mile (800m) stretch.

D. Other Work

The County reserves the right to perform, with its own forces, any maintenance or construction work as may be necessary on or near The Work covered by the Contract.

E. Enforcement

If the requirements of this Specification are not achieved, the Lumpkin County Public Works Department will cease all Work being performed and may withhold any monies due, or which may become due until the above requirements have been met.

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.

All 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-HistoricalBoundary, ESA-Wetland Boundary). The Contractor shall install orange barrier fence as delineated in thePlans.

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 less 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 – PROSECUTION 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 of The Work may inconvenience the public, obstruct traffic, or interfere with business. In addition 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	\$150
\$500,00	\$1,000,000	\$250
\$1,000,000	\$2,000,000	\$350
\$2,000,000	\$5,000,000	\$500
\$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 p a y m e n t .

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 109 – MEASUREMENT AND PAYMENT

109.1 Measurement and Quantities

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. The term "mega gram" will mean one metric ton, equivalent to 1,000 kg. Any commodity paid for by weight shall be weighed on scales that have been approved as specified below and which are furnished at the expense of the Contractor or Supplier. Weighing and measuring systems including remote controls shall be subject to type-approval by the Department of Transportation. The manufacture, installation, performance, and operation of such devices located in Georgia shall conform to, and be governed by, the Official Code of Georgia, Annotated, Section 10-2-5 of the Georgia Weights and Measures Act, the

Georgia Weights and Measures Regulations, as amended and adopted, the current edition of the National Bureau of Standards Handbook 44, and these Specifications. Weighing and measuring systems located outside Georgia which are utilized for weighing materials to be used in County work shall be manufactured, installed, approved, and operated in accordance with applicable laws and regulations for the state in which the scales are located.

All weighing, measuring, and metering devices used to measure quantities for payment shall be suitable for the purpose intended and will be considered to be "commercial devices." Commodity scales located in Georgia shall be certified before use for accuracy, condition, etc., by the Weights and Measures Division of the Georgia Department of Agriculture, its authorized representative, or the Georgia Department of Transportation Office of Materials and Research. Scales located outside Georgia shall be certified in accordance with applicable laws and regulations for the state in which the scales are located. The Georgia Department of Transportation Office of Materials and Research may certify the scales. This certification shall have been made within a period of not more than one year prior to date of use for weighing commodity.

All equipment and all mechanisms and devices attached thereto or used in connection therewith shall be constructed, assembled, and installed for use so that they do not facilitate the perpetration of fraud. Any scale component or mechanism, which if manipulated would alter true scale values (including manual zero setting mechanisms) shall not be accessible to the scale operator. Such components and mechanisms that would otherwise be accessible to the scale operator shall be enclosed.

Provisions shall be made for security seals where appropriate on equipment and accessories. A security seal shall be affixed to any adjustment mechanism designed to be sealed. Scale or accessory devices shall not be used if security seals have been broken or removed.

Any certified scale or scale component which has been repaired, dismantled, or moved to another location shall again be tested and certified before it is eligible for weighing.

Whenever materials that are paid for based on weight are from a source within the State, the scales shall be operated by and the weights attested to by signature and seal of a duly authorized Certified Public Weigher in accordance with Standard Operating Procedure 15 and the Official Code of Georgia, Annotated, Section 10-2-5 of the Georgia Weights and Measures Act as amended and adopted. When such materials originate from another state that has a certified or licensed weigher program, the scales shall be operated by a weigher who is certified by that state in accordance with applicable laws, and weight ticket recordation shall be in accordance with Standard Operating Procedure 15.

When materials are paid for based on weight and originate from another state which has no program for certifying or licensing weighers, the materials shall be weighed on scales located in the State of Georgia by a Certified Public Weigher in accordance with Standard Operating Procedure 15 and the Official Code of Georgia, Annotated, Section 10-2-5 of the Georgia Weights and Measures Act as amended and adopted.

No scale shall be used to measure weights greater than the scale manufacturer's rated capacity. A digital recorder shall be installed as part of any commodity scale. The recorder shall produce a printed digital record on a ticket with the gross, tare, and net weights of the delivery trucks, along with the date and time printed for each ticket. Provisions shall be made so that the scales or recorders may not be manually manipulated during the printing process. The system shall be so interlocked as to allow printing only when the scale has come to rest. Either the gross or net weight shall be a direct scale reading. Printing and recording systems that are capable of accepting keyboard entries shall clearly and automatically differentiate a direct scale weight value from any other weight values printed on the load ticket.

All scales used to determine pay quantities shall be provided to attain a zero-balance indication with no load on the load receiving element by the use of semi-automatic zero (push-button zero) or automatic zero maintenance.

Vehicle scales shall have a platform of sufficient size to accommodate the entire length of any vehicle weighed and shall have sufficient capacity to weigh the largest load. Adequate drainage shall be provided to prevent saturation of the ground under the scale foundation.

The Lumpkin County Public Works Department, at his discretion, may require the platform scales to be checked for accuracy. For this purpose, the Contractor shall load a truck with material of his choosing, weigh the loaded truck on his scales, and then weigh it on another set of certified vehicle scales. When the difference exceeds 0.4 percent of load, the scales shall be corrected and certified by a registered scale serviceman registered in the appropriate class as outlined in the Georgia Weights and Measures Regulations or in accordance with applicable requirements of the state in which the scales are located. A test report shall be submitted to the appropriate representative of the Department of Agriculture.

109.2 Measurement of Bituminous Materials

A. By Weighing the Material

The County prefers this method whenever it is practicable. This method will be considered acceptable under the following condition

SECTION 109 – MEASUREMENT & PAYMENT (LMIG Projects)

Delete the first sentence of Subsection 109.07.A, paragraph one, and substitute the following:

- A. General: 'On the tenth day of each calendar month, the total value of Items complete in place will be estimated by the Lumpkin County Public Works Department and certified for payment.

SECTION 149 – CONSTRUCTION LAYOUT

Retain Section 149 except as modified below:

Construction layout is not required for this Project.

SECTION 150 – TRAFFIC CONTROL

ALL REQUIREMENTS OUTLINED IN THE 2013 GA DOT STANDARD SPECIFICATIONS, MUTCD AND SPECIAL PROVISIONS SHALL APPLY TO THIS PROJECT.

150.1 GENERAL

This section as supplemented by the Plans, Specifications, and Manual on Uniform Traffic Control Devices (MUTCD) shall be considered the Temporary Traffic Control (TIC) Plan. Activities shall consist of furnishing, installing, maintaining, and removing necessary traffic signs, pedestrian signs, barricades, lights, signals, cones, pavement markings and other traffic control devices and shall include flagging and other means for guidance and protection of vehicular and pedestrian traffic through the Work Zone. This Work shall include both maintaining existing devices and installing additional devices as necessary in construction work zones.

When any provisions of this Specification or the Plans do not meet the minimum requirements of the MUTCD, the MUTCD shall control. The 2013 Edition of the MUTCD shall be in effect for the duration of the project.

The needs and control of all road users (motorists, bicyclists and pedestrians within the highway right-of-way and easements, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a Temporary Traffic Control (TIC) zone shall be an essential part of highway construction, utility work, maintenance operations and management of traffic incidents.

The Worksite Traffic Control Supervisor (WTCS) shall have a copy of Part VI of the MUTCD and the Contract on the job site. Copies of the current MUTCD may be obtained from the FHWA web page at <http://mutcd.fhwa.dot.gov>.

A. WORKER SAFETY APPAREL

All workers, including emergency responders, within the right-of-way who are exposed either to traffic (vehicles using the highway for purpose of travel) or to work vehicles and construction equipment within the TIC zone shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear", or equivalent revisions, and labeled as meeting the ANSI107-2004 standard performance for Class 2 or 3 risk exposure. Emergency and incident responders and law enforcement personnel within the TIC zone may wear high-visibility safety apparel that meets the performance requirements of the ANSI/ISEA 207-2006 publication entitled "American National Standard for High-Visibility Public Safety Vests", or equivalent revisions, and labeled as ANSI 207-2006, in lieu of ANSI/ISEA 107-2004 apparel. Firefighters or other

emergency responders working within the right-of-way and engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous material may wear retroreflective turn-out gear that is specified and regulated by other organizations, such as the National Fire Protection Association.

B. WORKSITE TRAFFIC CONTROL SUPERVISOR

ALL HIGHWAYS (ADDITIONAL REQUIREMENTS BELOW FOR INTERSTATES): The Contractor shall designate a qualified individual as the Worksite Traffic Control Supervisor (WTCS) who shall be responsible for selecting, installing and maintaining all traffic control devices in accordance with the Plans, Specifications, Special Provisions and the MUTCD. A written resume documenting the experience and credentials of the WTCS shall be submitted and accepted by the Lumpkin County Public Works Department prior to beginning any work that involves traffic control. The WTCS shall be available on a twenty-four (24) hour basis to perform his duties. If the work requires traffic control activities to be performed during the daylight and nighttime hours it may be necessary for the Contractor to designate an alternate WTCS. An alternate WTCS must meet the same requirements and qualifications as the primary WTCS and be accepted by the Lumpkin County Public Works Department prior to

Beginning any traffic control duties. The Worksite Traffic Control Supervisor's traffic control responsibilities shall have priority over all other assigned duties.

As the representative of the Contractor, the WTCS shall have full authority to act on behalf of the Contractor in administering the TTC Plan. The WTCS shall have appropriate training in safe traffic control practices in accordance with Part VI of the MUTCD. In addition to the WTCS all other individuals making decisions regarding traffic control shall meet the training requirements of the Part VI of the MUTCD.

The WTCS shall supervise the initial installation of traffic control devices. The Lumpkin County Public Works Department prior to the beginning of construction will review the initial installation. Modifications to traffic control devices as required by sequence of operations or staged construction shall be reviewed by the WTCS.

The WTCS shall be available on a full-time basis to maintain traffic control devices with access to all personnel, materials, and equipment necessary to respond effectively to an emergency situation within forty-five (45) minutes of notification of the emergency.

The WTCS shall regularly perform inspections to ensure that traffic control is maintained. Unless modified by the special conditions or by the Lumpkin County Public Works Department, routine deficiencies shall be corrected within a twenty-four (24) hour period. Failure to comply with these provisions shall be grounds for dismissal from the duties of WTCS and/or removal of the WTCS from the project. Failure of the WTCS to execute his duties shall be considered as non-performance under Subsection 150.08.

The Lumpkin County Public Works Department will periodically review the work for compliance with the requirements of the TTC plan.

On projects where traffic control duties will not require full time supervision, the Lumpkin County Public Works Department may allow the Contractor's Project Superintendent to serve as the WTCS as long as satisfactory results are obtained.

C. TRAFFIC CONTROL DEVICES

All traffic control devices used during the construction of a project shall meet the Standards utilized in the MUTCD, and shall comply with the requirements of these Specifications, Project Plans, and Special Provisions. All devices shall be tested at NCHRP Test Level III. Reference is made to Subsections 104.05, 107.07, and 107.09.

D. REFLECTORIZATION REQUIREMENTS

All rigid fluorescent orange construction warning signs (black on fluorescent orange) shall meet the reflectorization and color requirements of ASTM Type VII, VIII, IX or X regardless of the mounting height.

Portable signs which have flexible sign blanks shall meet the reflectorization and color requirements of ASTM Type VI.

Warning signs (W3-1a) for stop conditions that have rumble strips located in the travel way shall be reflectorized with ASTM Type IX fluorescent yellow sheeting.

All other signs shall meet the requirements of ASTM Type III or IV except for "Pass with Care" and "Do Not Pass" signs which may be ASTM Type 1 unless otherwise specified.

CHANNELIZATION DEVICES: Channelization devices shall meet the requirements of ASTM Type III or IV high intensity sheeting.

E. IMPLEMENTATION REQUIREMENTS

No work shall be started on any project phase until the appropriate traffic control devices have been placed in accordance with the Project requirements. Changes to traffic flow shall not commence unless all labor, materials, and equipment necessary to make the changes are available on the Project.

When any shift or change is made to the location of traffic or to the flow patterns of traffic, including pedestrian traffic, the permanent safety features shall be installed and fully operational before making the change. If staging or site conditions prevent the installation of permanent features then the equivalent interim devices shall be utilized. This work shall also include any necessary removal and reinstallation of guardrail panels to achieve the required panel lap to accommodate the appropriate shift and traffic flow including the final traffic flow configuration (The cost of performing this work shall be included in Traffic Control-Lump Sum).

Any section of the work that is on new location shall have all permanent safety features installed and fully operational before the work is opened to traffic. Safety features shall include but are not limited to the following items:

1. Guardrail including anchors and delineation with properly lapped panels
2. Impact attenuators
3. Traffic signals
4. Warning devices
5. Pavement markings including words, symbols, stop bars, and crosswalks
6. Roadway signs including regulatory, warning, and guide

Outdoor lighting shall be considered as a safety feature for welcome centers, rest areas, and weigh station projects. For typical roadway type projects new street lighting is not considered a safety feature unless specifically noted in the plans or in the special conditions.

F. MAINTENANCE OF TRAFFIC CONTROL DEVICES

Traffic control devices shall be in acceptable condition when first erected on the project and shall be maintained in accordance with Subsection 104.05 throughout the construction period. All unacceptable traffic control devices shall be replaced within 24 hours. When not in use, all traffic control devices shall be removed, placed or covered so as not to be visible to traffic. All construction warning signs shall be removed within seven calendar days after time charges are stopped or pay items are complete. If traffic control devices are left in place for more than ten days after completion of the Work, the County shall have the right to remove such devices, claim possession thereof, and deduct the cost of such removal from any monies due, or which may become due, the Contractor.

G. TRAFFIC INTERRUPTION RESTRICTIONS

The County reserves the right to restrict construction operations when, in the opinion of the Lumpkin County Public Works Department, the continuance of the Work would seriously hinder traffic flow, be needlessly disruptive or unnecessarily inconvenience the traveling public. The Contractor shall suspend and/or reschedule any work when the Lumpkin County Public Works Department deems that conditions are unfavorable for continuing the Work.

Advanced notification requirements to the Contractor to suspend work will be according to the events and the time restrictions outlined below:

Incident management	No advanced notice required
Threatening/Inclement weather	24 hours
Holidays sporting events, unfavorable conditions	Three (3) calendar days

If the work is suspended, the Contractor may submit a request for additional contract time as allowed under Section

108. The C o u n t y will review the request and may grant additional contract time as justified by the impact to the Contractor's schedule. Compensation for loss of productivity, rescheduling of crews, and rental of equipment or delays to the Contractor's schedule will not be considered for payment. Additional contract time will be the only consideration granted to the Contractor.

LAU/LAR/LMIG PROJECTS SHOULDER BUILDING NOT INCLUDED IN THE CONTRACT: The Contractor will furnish, install and maintain LOW/SOFT SHOULDER signs (yellow with black borders, ASTM Type III or IV) at the appropriate spacing, until Final Acceptance of the project by the C o u n t y . After Final Acceptance by the County the signs will become the property and responsibility of the county.

SECTION 400 – HOT MIX ASPHALTIC CONCRETE CONSTRUCTION

ALL REQUIREMENTS INCLUDING MATERIAL, EQUIPMENT, PROCEDURES, AND TESTING ETC. OUTLINED IN SECTION 400 AND SECTION 402 SHALL APPLY TO THIS PROJECT.

Delete Section 400 and Substitute the following:

400.1 General Description

This work includes constructing one or more courses of bituminous plant mixture on the prepared foundation or existing roadway surface. The mixture shall conform with lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Lumpkin County Public Works Department.

This section includes the requirements for all bituminous plant mixtures regardless of the gradation of the aggregates, type and amount of bituminous material, or pavement use.

Work will be accepted on a lot-to-lot basis according to the requirements of this Section and Section 106.

A. Paving Plan

Before starting asphaltic concrete construction, submit a written paving plan to the Lumpkin County Public Works Department for approval. Include the following on the paving plan:

- Proposed starting date
- Location of plant(s)
- Rate of production
- Average haul distance(s)
- Number of haul trucks
- Paver speed feet (meter)/minute for each placement operation
- Mat width for each placement operation
- Number and type of rollers for each placement operation
- Sketch of the typical section showing the paving sequence for each placement operation
- Electronic controls used for each placement operation
- Temporary pavement marking plan

If staged construction is designated in the Plans or contract, provide a paving plan for each construction stage.

If segregation is detected, submit a written plan of measures and actions to prevent segregation. Work will not continue until the plan is submitted to and approved by the County.

B. Job Mix Formula

After the Contract has been awarded, submit to the Lumpkin County Public Works Department a written job mix formula proposed for each mixture type to be used based on an approved mix design. Furnish the following information for each mix:

- Specific project for which the mixture will be used
- Source and description of the materials to be used
- Mixture I.D. Number
- Proportions of the raw materials to be combined in the paving mixture
- Single percentage of the combined mineral aggregates passing each specified sieve
- Single percentage of asphalt by weight of the total mix to be incorporated in the completed mixture
- Single temperature at which to discharge the mixture from the plant
- Theoretical specific gravity of the mixture at the designated asphalt content
- Name of the person or agency responsible for quality control of the mixture during production

Do the following to have the formulas approved in accordance with SOP 40 "Approval of Contractor Job Mix Formulas" and to ensure their quality:

1. Submit proposed job mix formulas for review at least two weeks before beginning the mixing operations.
2. Do not start hot mix asphaltic concrete work until the Lumpkin County Public Works Department has approved a job mix formula for the mixture to be used. No mixture will be accepted until the Lumpkin County Public Works Department has given approval.
3. Provide mix designs for all Superpave and 4.75 mm mixes to be used. The County will provide mix design results for other mixes to be used.

4. After a job mix formula has been approved, assume responsibility for the quality control of the mixtures supplied to the County according to Subsection 106.01, "Source of Supply and Quantitv of Materials."

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.

Section 652—Painting Traffic Stripe

652.1 General Description

This work includes furnishing and applying reflectorized high build standard and high build wet weather traffic line paint according to the Plans and these Specifications. This Item also includes applying words and symbols according to Plan details, Specifications, and the current Manual on Uniform Traffic Control Devices.

652.1.01 Definitions

Painted Stripes: Solid or broken (skip) lines. The location and color are designated on the Plans. Skip Traffic Stripes: Painted segments with unpainted gaps as specified on the Plans. The location and color are designated on the Plans.

652.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

Section 656—Removal of Pavement Markings

Section 870 – Paint

EPA Method 3052

EPA Method 6010

B. Referenced Documents

ASTM	ASTM	Other
D711	E4941	AASHTO M 247
D3335	E1710	QPL 46, QPL 71
D3718	E2177	SOP 39
D4144		TT-P-1952E

652.1.03 Submittals

General Provisions 101 through 150.

652.2 Materials

Ensure that materials for painting traffic stripe, words, and symbols meet the following requirements:

A. Traffic Line Paint

Material	Section
Traffic Line Paint 6A and 6B	870.2.02.A.4 and 870.2.02. A.5

Glass Spheres and Reflective Composite Optics

Use glass spheres and/or reflective composite optics for the reflective media system that ensures the high build paint pavement markings meet the reflectance performance requirements in Subsection 652.3.06. Do not use glass spheres and/or reflective composite optics containing greater than 200 ppm total arsenic, 200 ppm total antimony, or 200 ppm total lead when tested according to the most recent US EPA Methods 3052 and 6010, or other approved methods.

Ensure glass spheres meet the requirements of AASHTO M 247. Use glass spheres produced from an approved source listed on QPL 71. Glass beads conforming to an alternative gradation may be used provided all other requirements of AASHTO M 247 and this specification are met. Obtain approval from the Office of Materials to use alternate gradations.

652.2.01 Delivery, Storage, and Handling

A. Storage

Ensure the paint does not cake, liver, thicken, curdle, gel, or show any other objectionable properties after storage for six months above 32 °F (0 °C).

B. Handling

Mix thoroughly before use.

652.3 Construction Requirements

652.3.01 Personnel

General Provisions 101 through 150.

652.3.02 Equipment

A. Traveling Traffic Stripe Painter

Use a traffic stripe painter that can travel at a predetermined speed both uphill and downhill, applying paint uniformly. Ensure that the painter feeds paint under pressure through nozzles spraying directly onto the pavement.

Use a paint machine equipped with the following:

1. Three adjacent spray nozzles capable of simultaneously applying separate stripes, either solid or skip, in any pattern.
2. Nozzles equipped with the following:
 - Cutoff valves for automatically applying broken or skip lines
 - A mechanical bead dispenser that operates simultaneously with the spray nozzle to uniformly distribute glass spheres and/or reflective composite optics at an application rate to meet the reflectance performance requirements in Subsection 652.3.06.
 - Line-guides consisting of metallic shrouds or air blasts
3. Tanks with mechanical agitators
4. Small, portable applicators or other special equipment as needed

B. Hand Painting Equipment

Use brushes, templates, and guides when hand painting.

C. Cleaning Equipment

Use brushes, brooms, scrapers, grinders, high-pressure water jets, or air blasters to remove dirt, dust, grease, oil, and other foreign matter from painting surfaces without damaging the underlying pavement.

652.3.03 Preparation

Locate approved paint manufacturers on QPL 46.

Before starting each day's work, thoroughly clean paint machine tanks, connections, and spray nozzles, using the appropriate solvent.

Thoroughly mix traffic stripe paint in the shipping container before putting it into machine tanks.

Before painting, thoroughly clean pavement surfaces of dust, dirt, grease, oil, and all other foreign matter.

652.3.04 Fabrication

General Provisions 101 through 150.

652.3.05 Construction

A. Alignment

Ensure that the traffic stripe is the specified length, width, and placement. On sections where no previously applied markings are present, ensure accurate stripe location by establishing control points at spaced intervals. The Engineer will

approve control points.

B. Application

Apply traffic stripe paint by machine. If areas or markings are not adaptable to machine application, use hand equipment.

1. Application Rate

Paint will be subject to application rate checks.

Apply 5 in (125 mm) wide traffic stripe at the following minimum rates:

- a. Solid Traffic Stripe Paint: At least 34 gal/mile (80 L/km)
- b. Skip Traffic Stripe Paint: At least 10 gal/mile (24 L/km)

NOTE: Change minimum rate proportionately for varying stripe widths.

2. Thickness

Maintain a 25 mils (0.58mm) minimum wet average thickness above the surface of the pavement.

3. Do not apply paint to areas of pavement when:

- The surface is moist or covered with foreign matter.
- Air temperature in the shade is below 50 °F (10 °C)
- Wind causes dust to land on prepared areas or blows paint and glass spheres and/or reflective composite optics around during application

4. Apply a layer of glass spheres and/or reflective composite optics immediately after laying the paint. Apply glass spheres and/or reflective composite optics at a rate to meet the reflectance performance requirements in Subsection 652.3.06.

C. Protective Measures

Protect newly applied paint as follows:

1. Traffic

Control and protect traffic with warning and directional signs during painting. Set up warning signs before beginning each operation and place signs well ahead of the painting equipment. When necessary, use a pilot car to protect both the traffic and the painting operation.

2. Fresh Paint

Protect the freshly painted stripe using cones or drums. Repair stripe damage or pavement smudges caused by traffic according to Subsection 652.3.06.

D. Appearance and Tolerance of Variance

Continually deviating from stated dimensions is cause for stopping the work and removing the nonconforming stripe. (See Section 656—Removal of Pavement Markings.) Adhere to the following measurements:

1. Width

Do not lay stripe less than the specified width. Do not lay stripe more than 1/2 in (13 mm) over the specified width.

2. Length

Ensure that the 10 ft (3 m) painted skip stripe and the 30 ft (10 m) gap between painted segments vary no more than ± 1 ft (300 mm) each.

3. Alignment

- a. Ensure that the stripe does not deviate from the intended alignment by more than 1 in (25 mm) on straight lines or curves of 1 degree or less.
- b. Ensure that the stripe does not deviate by more than 2 in (50 mm) on curves exceeding 1 degree.

652.3.06 Quality Acceptance

A. General

For a minimum of 30 days from the time of placement, ensure the high build traffic paint pavement marking material shows no signs of failure due to blistering, excessive cracking, shipping, bleeding, staining, discoloration, oil content of the pavement materials, smearing or spreading under heat, deterioration due to contact with grease deposits, oil, diesel fuel, or gasoline drippings, spilling, poor adhesion to the pavement material, vehicular damage, and normal wear. In the event

that failures mentioned above occur, ensure corrective work is completed at no additional cost to the Department. Obtain pavement marking retroreflectivity values with a 30-meter geometry retroreflectometer.

B. Initial Retroreflectivity

1. Longitudinal Lines

Within 30 days of installation, ensure the in-place markings meet the following minimum reflectance values:

a. High Build Wet Weather Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m ²	250 mcd/lux/m ²
Wet recovery (ASTM E 2177)	150 mcd/lux/m ²	100 mcd/lux/m ²

b. High Build Standard Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m ²	250 mcd/lux/m ²

For each center line, edge line, and skip line, measure retroreflectivity 9 times for each mile; 3 times within the first 500 feet, 3 times in the middle, and 3 times within the last 500 feet. For projects less than one mile in length, measure retroreflectivity 9 times as above. Record all retro reflectivity measurements on the form OMR CVP 66 in SOP 39.

2. Messages, Symbols, and Transverse Lines

Within 30 days of installation, ensure the in-place markings when tested according to ASTM E 1710 meet the following minimum reflectance value of 275 mcd/lux/m². Perform at a minimum, one retroreflectivity measurement at one message, one symbol and one transverse line per intersection. Take one measurement per mile for locations other than intersections (i.e. school messages, railroad messages, bike symbols etc.)

C. Six Month Retroreflectivity (Longitudinal Lines)

Maintain the following minimum reflectance values for 180 days after installation:

a. High Build Wet Weather Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m ²	250 mcd/lux/m ²
Wet recovery (ASTM E 2177)	150 mcd/lux/m ²	100 mcd/lux/m ²

b. High Build Standard Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m ²	250 mcd/lux/m ²

Retest the in-place markings according to Subsection 652.3.06.B.1, 180 days after installation to ensure these minimum retroreflectance values are maintained.

NOTE: The Contractor is responsible for retroreflectivity testing. Furnish initial test results to the Engineer within 30 days of application. Furnish 6-month test results to the Engineer within 180 days of application or prior to final acceptance, whichever comes first.

D. Thickness

At the time of installation, check the thicknesses on all skip lines, edge lines and center lines according to ASTM D 4114. For each center line, edge line, and skip line, measure thickness above the pavement 3 times for each mile; once within the first 500 feet, once in the middle, and once within the last 500 feet. For projects less than one mile in length, measure the thickness above the pavement 3 times.

Record thickness measurements on the form OMR CVP 66 in SOP 39.

Submit results to the Engineer.

E. Corrective Work

For each mile section, if paint stripe fails to meet Plan details or Specifications or deviates from stated dimensions, correct it at no additional cost to the Department. If removal of pavement markings is necessary, perform it according to Section 656 and place it according to this Specification. No additional payment will be made for removal and replacement of unsatisfactory striping. Ensure corrective work is completed at no additional cost to the Department. Perform testing according to this Specification. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department.

Retroreflectivity and Thickness Longitudinal Line Deficiency: A deficiency will ensue when two or more Location Average results as recorded on form OMR CVP 66 within a One-Mile Section do not meet the performance criteria herein. The entire line within this one-mile section will be determined to be deficient. If the evaluated section is less than 1.0 mile, a single Location Average result not meeting the performance criteria herein will result in the entire line to be determined to be deficient.

Retroreflectivity Transverse Markings and Symbol Deficiency: A single Location Average result on the marking or symbol not meeting the performance criteria herein will result in the marking or symbol to be determined to be deficient.

F. Acceptance Criteria

Ensure that stripes and segments of stripes are clean-cut and uniform. Markings that do not appear uniform or satisfactory, either during the day or night, or do not meet Specifications, will be corrected at the Contractor's expense. Paint will be subject to application rate checks.

1. When correcting a deviation that exceeds the permissible tolerance in alignment, do the following:
 - a. Remove the affected portion of stripe, plus an additional 25 ft (8 m) in each direction according to Section 656—Removal of Pavement Markings.
 - b. Paint a new stripe according to these Specifications.
2. Removal of Excess Paint
Remove misted, dripped, or spattered paint to the Engineer's satisfaction. Do not damage the underlying pavement during removal.

Refer to the applicable portions of Section 656—Removal of Pavement Markings.

652.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

652.4 Measurement

When traffic stripe is paid for by the square yard (meter), the number of square yards (meters) painted is measured and the space between stripes is included in the overall measurement.

Linear measurements are made on the painted surface by an electronic measuring device attached to a vehicle. On curves, chord measurements, not exceeding 100 linear feet (30 linear meters), are used.

Traffic stripe and markings, complete in place, are measured and accepted for payment as follows:

A. Solid Traffic Stripe

Solid traffic stripe is measured by the linear foot (meter), linear mile (kilometer), or square yard (meter). Breaks or omissions in solid lines or stripes at street or road intersections are not measured.

B. Skip Traffic Stripe

Skip traffic stripe is measured by the gross linear foot (meter) or gross linear mile (kilometer). Unpainted spaces between the stripes are included in the overall measurements if the Plan ratio of 1 to 3 remains uninterrupted. Measurement begins and ends on a stripe.

C. Pavement Markings

Markings are words and symbols completed according to Plan dimensions. Markings are measured by the unit.

652.4.01 Limits

General Provisions 101 through 150.

652.5 Payment

Payment will be full compensation for the work under this Section, including the following:

- Cleaning and preparing surfaces
- Furnishing materials, including paints, beads, and thinners
- Applying, curing, and protecting paints
- Protecting traffic, including providing and placing necessary warning signs
- Furnishing tools, machines, and other equipment necessary to complete the Item
- **Stop bars where required**

Payment will be made under:

Item No. 652	Solid traffic stripe, _____ in (mm), (color)	Per linear mile (kilometer)
Item No. 652	Solid traffic stripe, _____ in (mm), (color)	Per gross linear mile (kilometer)
Item No. 652	Solid traffic stripe, _____ in (mm), (color)	Per linear foot (meter)
Item No. 652	Solid traffic stripe, _____ in (mm), (color)	Per gross linear foot (meter)
Item No. 652	Pavement markings, words, and symbols, (color)	Per each
Item No. 652	Traffic stripe, _____ in (mm), (color)	Per square yard (meter)
Item No. 652	Solid traffic stripe, High Build Wet Weather, _____ in (mm), (color)	Per linear mile (kilometer)
Item No. 652	Skip traffic stripe, _____ in (mm), (color)	Per gross linear mile (kilometer)
Item No. 652	Solid traffic stripe, High Build Wet Weather, _____ in (mm), (color)	Per linear foot (meter)
Item No. 652	Skip traffic stripe, _____ in (mm), (color)	Per gross linear foot (meter)
Item No. 652	Pavement markings, words, and symbols, (color)	Per each
Item No. 652	Traffic stripe, High Build Wet Weather, _____ in (mm), (color)	Per square yard (meter)

652.4.01 Adjustments

General Provisions 101 through 150.

SECTION 802 – AGGREGATES FOR ASPHALTIC CONCRETE

Delete Subsection 802.2.01. A.5.

SECTION 819 – FIBER STABILIZING ADDITIVES

Delete Section 819.

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) AASHTOR28 AASHTOT48

AASHTOT 179

AASHTOT240

AASHTO T 313

AASHTO T 314

AASHTO T 315

AASHTO T 316

AASHTO TP70 (proposed) / ASTM D7405

820.2 Materials

820.2.1 Asphalt Cement

A. Requirements

1. 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 of PG 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 Temperature				Original Binder	Residue Of Binder After:	
	PG 58-22	PG 64-22	PG 67-22	PG 76-22		Rolling Thin Film Oven, AASHTO: T240	Pressure Aging AASHTO: R28
Flash Point, Min., AASHTO T48					446°F (230 °C)		
Viscosity, Max., AASHTO T316, (Note a)	275 OF (135 °C)				3Pa-S (3000CP)		
Mass Loss (%), Max., AASHTO T240, (Note b)						0.5	
Dynamic Shear, G*/sin . AASHTO T315, 1QRad/Sec	136 °F (58 °C)	147 °F (64 °C)	153 OF (67 °C)	169 °F (76 °C)	1.0 kPa	2.2 kPa	
Dissipated Energy, Dynamic Shear, G*·sin . AASHTO T315, 10 Rad/Sec	72 OF (22 °C)	77 OF (25 °C)	80 OF (26.5 °C)	88 OF (31 °C)			≥ 5000 kPa
Creep Stiffness, 60 sec., AASHTO T313, (Note c)	10 OF (-12 °C)						≤ 300 000 kPa m > 0.300
Direct Tension, 1.0 mm/min., AASHTO T314, Failure Strain	10 ° F (- 12 °C)						Report
Multiple Stress Creep & Recovery (MSCR) test, ASTM D7405, AASHTO TP70 (proposed), Jnr 3.2 kPa, (Note f)(Note g)				64 sec		≥ 1.0	

Notes:

- 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.
- Heat loss by AASHTO: T 179 may be accepted in lieu of mass loss by AASHTO: T 240.
- 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 the m-value requirement in either case.
- The maximum Phase Angle measured by DSR shall be ≤ 75 degrees.
- The maximum Mass Loss shall be ≤ 1%, when used in conjunction with Bituminous Surface Treatment (Section 424).
- 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.
- 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).

The State Materials and Research Lumpkin County Public Works Department may interrupt production until test results are known in the event there is reason to suspect a sample will be outside specification limits.

B. Materials Warranty

General Provisions 101 through 150.

SECTION 883 – MINERAL FILLER

Delete Section 883 and substitute the following:

883.1 General Description

This section covers mineral filler used as an ingredient in bituminous paving mixtures. Use mineral filler listed in the approved Asphalt Mix Design and Job Mix Formula and in Qualified Products List (QPL) 81. Use an approved mineral filler that meets the requirements below and consist of finely divided rock dust, slag dust, hydrated lime, hydraulic cement, or fly ash. Other fine, inert, non-toxic materials produced as by-products of industrial processes and meeting the requirements below may be approved as mineral filler based on satisfactory performance in the asphalt mix design procedure. Ensure mineral filler is sufficiently dry, flows freely, and is free from lumps.

883.1.1 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

QPL81

AASHTOR28

AASHTOT240

AASHTOT313

AASHTOT315

GDT-22

GDT 123

883.2 Materials

883.2.1 Mineral Filler

A. Requirements

Use mineral filler meeting the following gradation limits:

Sieve Size	Percent Passing
No. 30 (6001-1m)	100
No. 50 (3001-1m)	95-100
No. 200 (751-1m)	55-100

Ensure that the mineral filler is free from impurities.

Subject mineral filler for use in Stone Matrix Asphalt (SMA) to mortar property testing according to AASHTO T-240, AASHTO R-28, AASHTO T-313, and AASHTO T-315. Mineral filler may be rejected and removed from QPL-81 for unsatisfactory performance as an ingredient in an asphalt mixture, as determined in these procedures or in the SMA Mix design procedure, GDT-123. Ensure the total fine mortar meets the following requirements:

Test	Specification
Unaged DSR, G*/sino (kPa)	5
RTFO Aged DSR, G*/sino (kPa)	11
PAV Aged BBR, Stiffness (MPa)	1500 maximum

B. Fabrication

General J: provisions 101 through 150.

C. Acceptance

Test gradation according to GDT-22.

D. Materials Warranty

General Provisions 101 through 150.