

ADDENDUM 02

BID SPECIFICATION REVISION RE BARTOW COUNTY GA FLAP GRANT RESURFACING PROJECT

Bidders are being given the option of specifying the use of either Surface Treatment Leveling or Open Graded Interlayer in the resurfacing process. Please note that bid specification 451 is now a part of the bid package. The revised Proposed Schedules of Items are to be filled out and attached to the bid proposal. The final bid price will be considered as the combination of the two Schedules.

Received and included in the bid package

Name and Title	Date
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PROPOSED SCHEDULE OF ITEMS
 CHITWOOD COVE ROAD RESURFACING
 PROJECT Project #: 00151410

Item #	Item	Unit	Unit Cost	Charge
	Alternate One – Surface Treatment Leveling			
402-1812	85 LBS/SY RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	TN		
424-5007	SINGLE SURFACE TRTMT, STN SIZE 7 , GP 1 OR 2	SY		
	Alternate Two – Open Graded Interlayer			
413-0750	TACK COAT	GL		
415-5000	ASPHALTIC CONCRETE OPEN GRADED CRACK RELIEF INTERLAYER, GP 2 ONLY, INCL BITUM MATL & H LIME	TN		
	Base Bid			
150-1000	TRAFFIC CONTROL	LS		
402-3103	135 LBS/SY RECYCLED ASPH CONC 9.5 MM SUPERPAVE, TYPE II, GP 2 ONLY, INCL BITUM MATL & H LIME	TN		
432-5010	MILL ASPH CONC PVMT, VARIABLE DEPTH	SY		
653-0210	THERMOPLASTIC PVMT MARKING, WORD, TP 1	EA		
653-0300	THERMOPLASTIC PVMT MARKING, SYMBOL, TP 1	EA		
653-1501	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	GLF		
653-1502	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	GLF		
653-1704	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	GLF		
653-3501	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	GLF		
653-3502	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, YELLOW	GLF		
670-1060	WATER MAIN, 6 IN	LF		
670-1490	CUT AND CAP EXISTING WATER MAIN	EA		
670-1650	BACKFLOW PREVENTION ASSEMBLY	EA		
670-2002	VALVE MARKER	EA		
670-3066	TAPPING SLEEVE & VALVE ASSEMBLY, 6 IN X 6 IN	EA		
670-4000	FIRE HYDRANT	EA		
670-4500	CONCRETE THRUST COLLAR, 6 IN PIPE OR SMALLER	EA		
670-9734	RELOCATE EXISTING WATER METER, INCL BYPASS & VAULT -	EA		
	TOTAL			



PROPOSED SCHEDULE OF ITEMS
 McKASKEY CREEK ROAD RESURFACING PROJECT
 Project #: 00151411

Item #	Item	Unit	Unit Cost	Charge
	Alternate One – Surface Treatment Leveling			
402-1812	85 LBS/SY RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	TN		
424-5007	SINGLE SURFACE TRTMT, STN SIZE 7 , GP 1 OR 2	SY		
	Alternate Two – Open Graded Interlayer			
413-0750	TACK COAT	GL		
415-5000	ASPHALTIC CONCRETE OPEN GRADED CRACK RELIEF INTERLAYER, GP 2 ONLY, INCL BITUM MATL & H LIME	TN		
	Base Bid			
150-1000	TRAFFIC CONTROL	LS		
402-3103	135 LBS/SY RECYCLED ASPH CONC 9.5 MM SUPERPAVE, TYPE II, GP 2 ONLY, INCL BITUM MATL & H LIME	TN		
432-5010	MILL ASPH CONC PVMT, VARIABLE DEPTH	SY		
653-0210	THERMOPLASTIC PVMT MARKING, WORD, TP 1	EA		
653-0300	THERMOPLASTIC PVMT MARKING, SYMBOL, TP 1	EA		
653-1501	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	GLF		
653-1502	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	GLF		
653-1704	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	GLF		
653-3501	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	GLF		
653-3502	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, YELLOW	GLF		
670-1060	WATER MAIN, 6 IN	LF		
670-1490	CUT AND CAP EXISTING WATER MAIN	EA		
670-1650	BACKFLOW PREVENTION ASSEMBLY	EA		
670-2002	VALVE MARKER	EA		
670-3066	TAPPING SLEEVE & VALVE ASSEMBLY, 6 IN X 6 IN	EA		
670-4000	FIRE HYDRANT	EA		
670-4500	CONCRETE THRUST COLLAR, 6 IN PIPE OR SMALLER	EA		
670-9734	RELOCATE EXISTING WATER METER, INCL BYPASS & VAULT -	EA		
	TOTAL			

Section 415—Asphaltic Concrete Open Graded Crack Relief Interlayer

415.1 General Description

This work includes constructing a bituminous plant produced Asphaltic Concrete Open Graded Crack Relief Interlayer (OGI) over the existing roadway surface. The mixture shall serve as asphaltic concrete leveling over irregular surfaces and provide mitigation for reflective cracking prior to the placement of the final surface pavement. The mixture shall conform to the lines, grades, thicknesses, typical sections and cross sections shown on the plans or established by the Engineer.

This section includes the requirements for Asphaltic Concrete Open Graded Crack Relief Interlayer mixtures regardless of the gradation of the aggregates, type and amount of bituminous material, or pavement use. Follow the requirements in Section 400, Section 402 and Section 828 for production and placement, materials, equipment, and acceptance plans except as noted or modified in this specification.

Acceptance of work is on a lot-to-lot basis according to the requirements of this Section, Section 400, Section 402 and Section 106.

415.1.01 Definitions

Asphaltic Concrete Open Graded Crack Relief Interlayer: an open graded mixture placed at a lift thickness that yields stone on stone contact that provides in-place air void content of 18 to 23 percent to mitigate existing cracking within asphaltic concrete pavements.

415.1.02 Related References

A. Standard Specifications

- Section 106—Control of Materials
- Section 109—Measurement and Payment
- Section 152—Field Laboratory Building
- Section 400 – Hot Mix Asphaltic Concrete Construction
- Section 402 – Hot Mix Recycled Asphaltic Concrete
- Section 413—Bituminous Tack Coat
- Section 800 – Coarse Aggregate
- Section 802 - Aggregate for Asphaltic Concrete
- Section 820 – Asphalt Cement
- Section 828—Hot Mix Asphaltic Concrete Mixtures
- Section 831 – Admixtures
- Section 882 – Lime
- Section 883 – Mineral Filler

B. Referenced Documents

AASHTO T 209

AASHTO T 202

AASHTO T 49

AASHTO T 315

Department of Transportation Standard Operating Procedure (SOP) 27

Department of Transportation Standard Operating Procedure (SOP) 15

Department of Transportation Standard Operation Procedure (SOP) 40

GDT 38

GDT 73

GDT 83

GDT 114

GDT 119

GDT 125

GDT 126

GSP 15

GSP 21

QPL 1

QPL 2

QPL 7

QPL 26

QPL 39

QPL 41

QPL 45

415.1.03 Submittals

A. Invoices

Furnish formal written invoices from a supplier for all materials used in production of HMA when requested by Department. Show the following on the Bill of Lading:

- Date shipped
- Quantity in tons (megagrams)
- Included with or without additives (for asphalt cement)

Purchase asphaltic cement directly from a supplier listed on Qualified Products List 7 and provide copies of Bill of Lading at the Department's request.

Section 415 — Asphaltic Concrete Open Graded Crack Relief Interlayer

B. Paving Plan

Before starting asphaltic concrete construction, submit a written paving plan to the Engineer 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 Department.

C. Job Mix Formula

Submit to the Engineer 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 Engineer has approved a job mix formula for the mixture to be used. No mixture will be accepted until the Engineer has given approval.
3. Provide mix designs for all Asphaltic Concrete Open Graded Crack Relief Interlayer mixtures to be used.
4. After a job mix formula has been approved, assume responsibility for the quality control of the mixtures supplied to the Department according to Subsection 106.01, *Source of Supply and Quantity of Materials*.

D. Quality Control Program

Submit a Quality Control Plan to the Office of Materials and Testing for approval. The Quality Control Program will be included as part of the certification in the annual plant inspection report.

Section 415 — Asphaltic Concrete Open Graded Crack Relief Interlayer

415.2 Materials

The requirements established in Section 400 are to be followed for Asphaltic Concrete Open Crack Relief Interlayer production and placement, materials, equipment, and acceptance plans except as noted or modified in this specification.

Ensure that materials comply with the specifications listed in Table 1.

TABLE 1—MATERIALS SPECIFICATIONS

Material	Subsection
Asphalt Cement, Grade Specified	820.2
Coarse Aggregates for Asphaltic Concrete	802.2.02
Fine Aggregates for Asphaltic Concrete	802.2.01
Mineral Filler	883.1
Heat Stable Anti-Stripping Additive	831.2.04
Hydrated Lime	882.2.03
Silicone Fluid (When approved by the Office of Materials and Testing)	831.2.05
Bituminous Tack Coat: PG 58-22, PG 64-22, PG 67-22	820.2
Hot Mix Asphaltic Concrete Mixtures	828

Section 415 — Asphaltic Concrete Open Graded Crack Relief Interlayer

415.2.01 Mix Design Requirements

The Open Graded Crack Relief Interlayer Mixture shall be formulated to contain approximately 18 to 23 percent in-place air voids after compaction. Use approved mixtures that meet the following mixture control tolerances and design criteria:

TABLE 2 – ASPHALTIC CONCRETE OPEN GRADED CRACK RELIEF INTERLAYER MIXTURE DESIGN AND CONTROL

Sieve Size	Mixture Control Tolerance, %	Design Gradation Limits, % Passing
		Open Graded Crack Relief Interlayer
3/4 in. (19 mm) sieve	±0.0	100
1/2 in. (12.5 mm) sieve	±6.1	80 - 100
3/8 in. (9.5 mm) sieve	±5.6	40 - 65
No. 4 (4.75 mm) sieve	±5.7	10 - 25
No. 8 (2.36 mm) sieve	±4.6	2 - 10
No. 200 (75 µm) sieve	±2.0	2 - 5
Range for % AC	±0.4	4.50 – 5.25
Class of stone (Section 800)		“A” only
Drain-down (AASHTO T305), %		<0.3
Design optimum air voids (%)		20% ± 2%
Control Sieves used in Acceptance Schedule		3/8 in., No. 8 (9.5 mm, 2.36 mm) and Asphalt Cement

Notes:

1. Use only PG 64-22 or PG 67-22 asphalt cement (specified in Section 820).
2. Use no less than 1.0% hydrated lime regardless of aggregates group or source(s) used.
3. Ensure no more than 10 percent Recycled Asphalt Pavement (RAP) is used in Asphaltic Concrete Open Graded Interlayer mixtures.
4. Quality Acceptance Test Results for AC content deviating $> \pm 0.3$ % from the approved Job Mix Formula (JMF) consistently over three Lots may subject the mix to a revised AC content on the project JMF at the discretion of the State Materials Engineer based on statistical trend.
5. Range for % AC is Original Optimum AC (OOAC) at 25 blow Marshall prior to the Corrected Optimum AC (COAC) calculation detailed in SOP 2 (Appendix D).

415.3 Construction Requirements

The requirements established in Section 400 are to be followed for asphaltic concrete mixture production and placement, materials, equipment, and acceptance plans except as noted or modified in this specification.

415.3.01 Personnel

General Provisions 101 through 150.

415.3.02 Construction

Asphaltic concrete plants that produce mix for Department use are governed by Quality Assurance for Hot Mix Asphaltic Concrete Plants in Georgia, Laboratory Standard Operating Procedure No. 27.

Follow requirements established in Section 400 for production and placement, materials, equipment, acceptance plans and adjustments except as noted or modified in this specification.

- A. Apply a bituminous tack coat according to Section 413. The Engineer will determine the application rate, which must be within the limits of 0.06 gal/yd² to 0.10 gal/yd² (0.27 L/m² to 0.45 L/m²) (residual asphalt cement).
- B. The mix shall be produced and placed at a temperature of 250°F with a tolerance of ± 20°F.
- C. Place the mix to a compacted lift thickness of 1-inch (25 mm). For construction purposes, the target thickness will be converted to spread rate based on the bulk specific gravity of the asphaltic concrete mixture being used as shown in the following equation:

$$\text{Spread rate (lbs./yd}^2\text{)} = t * G_{mb} * 46.8 \quad (\text{Spread rate (kg/ m}^2\text{)} = t * G_{mb})$$

Where: t = Compacted lift thickness (inches, mm)

G_{mb} = bulk specific gravity of the mix from the approved mix design

The spread rate shall be controlled within 10 lbs./yd² (6 kg/m²).

- D. Do not place mix at air temperatures below 50 °F (10 °C).
- E. The mix shall be compacted in a manner to achieve 18 to 23 percent in-place air voids. Steel wheel rollers operating in static mode **only** will be used to seat the lift of Asphaltic Concrete Open Graded Crack Relief Interlayer mixture. Pneumatic tire rollers shall not be allowed on the Asphaltic Concrete Open Graded Crack Relief Interlayer mat.

415.4. Measurement

Asphaltic Concrete Open Graded Crack Relief Interlayer mixture, complete, in place and accepted, is measured in tons (megagrams). If the spread rate exceeds the upper limits outlined in Subsection 415.3.02.C by > 15 lbs./yd², the mix in excess will not be paid for. If the rate of the spread is ≤ 10 lbs./yd² than the lower limit, the deficient course is subject to correction by overlaying the entire lot. The mixture used for correcting deficient areas is paid for at the Contract Unit Price of the course being corrected and is subject to mixture control requirements established in Table 2 – Asphaltic Concrete Open Graded Crack Relief Interlayer Mixture Design and Control. After the deficient course has been corrected, the total spread rate for that lot is recalculated, and the mix in excess of the upper limits outlined in Subsection 415.3.02.C will not be paid for.

415.5 Payment

Asphaltic Concrete Open Graded Crack Relief-Interlayer mix is paid for at the Contract Unit Price per ton (megagram). Payment is full compensation for furnishing and placing materials including asphalt cement, hydrated lime, approved additives, and for cleaning and repairing, preparing surfaces, hauling, mixing, spreading, rolling, and performing other operations to complete the Contract Item.

Section 415 — Asphaltic Concrete Open Graded Crack Relief Interlayer

Payment will be made under:

Item No. 415	Asphaltic Concrete Open Graded Crack Relief Interlayer, group-blend, Including bituminous materials and hydrated lime	Per ton (megagram)
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415.5.01 Adjustments

A. Materials Produced and Placed During the Adjustment Period

Follow requirements established in Section 400 for production and placement, materials, equipment, acceptance plans and adjustments except as noted or modified in this specification.

Asphaltic Concrete Open Graded Crack Relief Interlayer shall be granted an adjustment period for the first Lot or day, whichever is less, produced for the Contract. A new adjustment period shall not be granted for a change of producer, mix design or asphalt plant location. The adjustment period is provided to adjust or correct the mix and to establish the construction procedures and sequence of operations. Test the mixture in accordance with Section 400.3.06. Maintain the asphalt cement content and gradation within the limits provided in Table 2 – Asphaltic Concrete Open Graded Interlayer Mixture Design and Control. The Engineer will not use these test results in the acceptance for payment decision, but production and placement operations shall cease for failure to meet mixture control tolerances established in Table 2 – Asphaltic Concrete Open Graded Interlayer Mixture Design and Control.

415.5.02 Determine Lot Acceptance

The Engineer will accept the mixture based on visual inspection. The mixture shall be inspected for texture, segregation, bleeding, fat spots, raveling, delamination, tearing, targeted in-place air void content and slippage areas. Remove and replace any areas determined to be unacceptable to the Engineer.