



Bid Solicitation Update

Subject: Revision to Bid Specification

DATE: November 25, 2015

IFB: 23001 BID OPENING DATE | TIME: December 02, 2015 | 11:00 AM

GROUP | TITLE: GROUP: 31555 - Comprehensive Liquid Bituminous Materials (All State Agencies and Political Subdivisions)

OGS DESIGNATED CONTACTS:

José DeAndres	CMS 2	518-474-3024	jose.deandres@ogs.ny.gov
Marcos Ortiz	CMS 1	518-474-0117	marcos.ortiz@ogs.ny.gov
Joseph Hodder	CMS 3	518-474-3668	joseph.hodder@ogs.ny.gov

To Prospective Bidders:

Revision on the aforementioned Invitation for Bids begin on page two (2) of this Bid Solicitation Update. It is the responsibility of the bidder to incorporate any changes into their bid documents.

All other terms and conditions of the bid solicitation remain unchanged. All bids shall be considered on the basis of this amendment.

If submitting a bid, this letter should be signed, attached to and made a part of your bid.

Bid of (Company): _____

Address: _____

City, State, Zip: _____

Signature of Bidder: _____

Printed Copy of Signature: _____

Date: _____

REVISION TO BID SPECIFICATION

(Attachment 14 - Microsurfacing and/or Quick Set Slurry Seal Price Page)

On Attachment 14 - Microsurfacing and/or Quick Set Slurry Seal Price Page of the above Invitation for Bids, the "Fog Seal Prior to Microsurfacing" has been modified with the following:

Material Designation 407.01000118 - FOG SEAL PRIOR TO MICROSURFACING					
Price per gallon to furnish above material, haul, deliver and apply with contractor's equipment					
QUANTITY IN GALLONS PER DAY					
	<u>0 - 500 gal</u>	<u>501 - 1,000 gal</u>	<u>1,001 - 3,000 gal</u>	<u>3,001 - 10,000 gal</u>	<u>10,001+gal</u>
MILES					
0-10	Note to Bidders:				
11-25	Please DO NOT include any bid prices in this Bid Notification Update.				
26-50	Use the original cells in Attachment 14 – Microsurfacing and/or Quick Set Slurry Seal Price Page to bid your prices, taking into account the changes included in this template.				
+51					



Bid Solicitation Update

Subject: Revision to Bid Specification

DATE: November 24, 2015

IFB: 23001 BID OPENING DATE | TIME: December 02, 2015 | 11:00 AM

GROUP | TITLE: GROUP: 31555 - Comprehensive Liquid Bituminous Materials (All State Agencies and Political Subdivisions)

OGS DESIGNATED CONTACTS:

José DeAndres	CMS 2	518-474-3024	jose.deandres@ogs.ny.gov
Marcos Ortiz	CMS 1	518-474-0117	marcos.ortiz@ogs.ny.gov
Joseph Hodder	CMS 3	518-474-3668	joseph.hodder@ogs.ny.gov

To Prospective Bidders:

Revision on the aforementioned Invitation for Bids begin on page two (2) of this Bid Solicitation Update. It is the responsibility of the bidder to incorporate any changes into their bid documents.

All other terms and conditions of the bid solicitation remain unchanged. All bids shall be considered on the basis of this amendment.

If submitting a bid, this letter should be signed, attached to and made a part of your bid.

Bid of (Company): _____

Address: _____

City, State, Zip: _____

Signature of Bidder: _____

Printed Copy of Signature: _____

Date: _____

REVISION TO BID SPECIFICATION (Page 70)

On page 70 of the above Invitation for Bids, under **Section 11 - Group – Joint and Crack Filler/Sealer, clause 11.3 – “Asphalt Price Adjustments – Joint and Crack Filler/Sealer / 11.3.1 – General – a)”** has been eliminated and replaced with the following:

- a. Asphalt price adjustments allowed will be based on the September 1, 2015 average of the F.O.B. terminal price per ton of unmodified PG 64S-22 binder without anti-stripping agent (base average F.O.B. terminal price). The new monthly average terminal price will be determined by the New York State Department of Transportation based on prices of pre-approved primary sources of performance graded binder in accordance with the New York State Department of Transportation Standard Specification.

The September 1, 2015 average is \$521.000

NOTE: The same grade of asphalt cement used in establishing the base average F.O.B. terminal price shall be used in establishing the new average F.O.B. terminal price.

In the event that one or more of the New York State Department of Transportation pre-approved sources discontinue posting a price for asphalt cement, the base average F.O.B. terminal **price shall not be recalculated.**



Bid Solicitation Update

Subject: Revisions and Clarifications to Bid Specification

DATE: November 23, 2015

IFB: 23001 BID OPENING DATE | TIME: December 02, 2015 | 11:00 AM

GROUP | TITLE: GROUP: 31555 - Comprehensive Liquid Bituminous Materials (All State Agencies and Political Subdivisions)

OGS DESIGNATED CONTACTS:

José DeAndres | CMS 2 | 518-474-3024 jose.deandres@ogs.ny.gov

Marcos Ortiz | CMS 1 | 518-474-0117 marcos.ortiz@ogs.ny.gov

Joseph Hodder | CMS 3 | 518-474-3668 joseph.hodder@ogs.ny.gov

To Prospective Bidders:

Revisions on the aforementioned Invitation for Bids begin on page two (2) of this Bid Solicitation Update.

Clarifications on the aforementioned Invitation for Bids begin on page fourteen (14) of this Bid Solicitation Update.

It is the responsibility of the bidder to incorporate any changes into their bid documents.

All other terms and conditions of the bid solicitation remain unchanged. All bids shall be considered on the basis of this amendment.

If submitting a bid, this letter should be signed, attached to and made a part of your bid.

Bid of (Company): _____

Address: _____

City, State, Zip: _____

Signature of Bidder: _____

Printed Copy of Signature: _____

Date: _____

REVISION TO BID SPECIFICATION (Page 37)

On page 37 of the above Invitation for Bids, the “Total Allowable Petroleum” Table under **Section 7 - Asphalt Emulsions** (clause 7.3 – “Asphalt Price Adjustments – Asphalt Emulsions / 7.3.1 – General”) has been replaced with the following:

Material Designation	Grade	Asphalt %	Petroleum Allowance %	Total Allowable Petroleum %
702-0700	18-60	100.0	0.2	100.2%
702-3001	RS-1	55.0	1.7	56.7%
702-3002	RS-1h	55.0	1.7	56.7%
702-3101	RS-2	63.0	2.7	65.7%
702-3102	HFRS-2	63.0	2.7	65.7%
702-3201	MS-2	65.0	8.2	73.2%
702-3301	HFMS-2	65.0	8.2	73.2%
702-3401	HFMS-2h	65.0	2.7	67.7%
702-3402	HFMS-2s	65.0	8.2	73.2%
702-3501	SS-1	57.0	0.2	57.2%
702-3601	SS-1h	57.0	0.2	57.2%
702-3101P	RS-2p	63.0	2.7	65.7%
702-3102P	HFRS-2p	63.0	2.7	65.7%
702-4001	CRS-1	60.0	2.7	62.7%
702-4002	CRS-1h	60.0	2.7	62.7%
702-4101	CRS-2	65.0	2.7	67.7%
702-4201	CMS-2	65.0	10.2	75.2%
702-4301	CMS-2h	65.0	10.2	75.2%
702-4401	CSS-1	57.0	0.2	57.2%
702-4501	CSS-1h	57.0	0.2	57.2%
702-4601	CQS-1h	62.0	0.2	62.2%
702-4001P	CRS-1p	60.0	2.7	62.7%
702-4101P	CRS-2p	65.0	2.7	67.7%
702-4601P	CQS-1p	62.0	0.2	62.2%
702-XXXXT	Diluted Tack Coat	40.0	0.2	40.2%

Note: For Material Designation 702-XXXXT Straight Tack Coat, use Total Allowable Petroleum % for appropriate emulsion grade

(Continues next page)

REVISION TO BID SPECIFICATION (Page 41)

On page 41 of the above Invitation for Bids, the “**Total Allowable Petroleum**” Table under **Section 8 – Chip Seal** (clause **8.3 – “Asphalt Price Adjustments – Chip Seal / 8.3.1 – General”**) has been replaced with the following:

Material Designation	Grade	Asphalt %	Petroleum Allowance %	Total Allowable Petroleum %
702-0700	18-60	100.0	0.2	100.2%
702-3001	RS-1	55.0	1.7	56.7%
702-3002	RS-1h	55.0	1.7	56.7%
702-3101	RS-2	63.0	2.7	65.7%
702-3102	HFRS-2	63.0	2.7	65.7%
702-3201	MS-2	65.0	8.2	73.2%
702-3301	HFMS-2	65.0	8.2	73.2%
702-3401	HFMS-2h	65.0	2.7	67.7%
702-3402	HFMS-2s	65.0	8.2	73.2%
702-3501	SS-1	57.0	0.2	57.2%
702-3601	SS-1h	57.0	0.2	57.2%
702-3101P	RS-2p	63.0	2.7	65.7%
702-3102P	HFRS-2p	63.0	2.7	65.7%
702-3301P	HFMS-2p	65.0	8.2	73.2%
702-4001	CRS-1	60.0	2.7	62.7%
702-4002	CRS-1h	60.0	2.7	62.7%
702-4101	CRS-2	65.0	2.7	67.7%
702-4201	CMS-2	65.0	10.2	75.2%
702-4301	CMS-2h	65.0	10.2	75.2%
702-4401	CSS-1	57.0	0.2	57.2%
702-4501	CSS-1h	57.0	0.2	57.2%
702-4601	CQS-1h	62.0	0.2	62.2%
702-4001P	CRS-1p	60.0	2.7	62.7%
702-4101P	CRS-2p	65.0	2.7	67.7%
702-4601P	CQS-1p	62.0	0.2	62.2%
702-XXXXT	Diluted Tack Coat	40.0	0.2	40.2%

Note: For Material Designation 702-XXXXT Straight Tack Coat, use Total Allowable Petroleum % for appropriate emulsion grade

REVISION TO BID SPECIFICATION

(Attachment 14 - Microsurfacing and/or Quick Set Slurry Seal Price Page)

On Attachment 14 - Microsurfacing and/or Quick Set Slurry Seal Price Page of the above Invitation for Bids, the “**Fog Seal Prior to Microsurfacing**” has been modified with the following:

<p>Material Designation 407.01000118 - FOG SEAL PRIOR TO MICROSURFACING</p> <p>Price per gallon to furnish above material, haul, deliver and apply with contractor's equipment</p> <p style="text-align: center;"><u>QUANTITY IN GALLONS PER DAY</u></p>

REVISION TO BID SPECIFICATION

(Attachment 08 - Detailed Specifications – Liquid Bituminous Materials)

On Attachment 08 - Detailed Specifications – Liquid Bituminous Materials of the above Invitation for Bids, the “**Detailed Specifications for Heater Scarification – 6. Basis of Payment**” clause (page 25 of Attachment 08) have been deleted and replaced with the following:

6 BASIS OF PAYMENT

The unit price bid per square yard for this item shall include the cost of all labor, tools, equipment, and incidentals necessary to satisfactorily complete the work including cleaning debris from the existing pavement, heating and scarifying, mixing, paving, compaction, and coring and testing of the recycled materials. No deduction will be made in areas such as catch basins or manholes where the scarifying equipment cannot be used.

The unit price bid per gallon of recycling agent shall include the cost of all labor, material, and equipment necessary to complete the work satisfactorily. ***The Regional Materials Engineer will evaluate the material represented by any failing sample of recycling agent. If the Engineer elects to leave the material in place, the Contractor shall receive no payment for the bid price of the recycling agent for the pavement section represented by the failing sample.***

Payment will be made under:

Item No.	Item	Pay Unit
402.99010005	Heater Scarification of Hot Mix Asphalt (HMA) Pavement	Square Yards
402.99010105	Recycling Agent	Gallons

REVISION TO BID SPECIFICATION

(Attachment 08 - Detailed Specifications – Liquid Bituminous Materials)

On Attachment 08 - Detailed Specifications – Liquid Bituminous Materials of the above Invitation for Bids, the “**Detailed Specifications for Paver Placed Surface Treatment and Rubber Modified Paver Placed Surface Treatment**” (pages 54 to 68 of Attachment 08) have been deleted and replaced with the following:

DETAILED SPECIFICATIONS – PAVER PLACED SURFACE TREATMENT

415.0X0F0118 Paver Placed Surface Treatment

DESCRIPTION:

This work shall consist of providing and placing ITEM 415.0X0F118 – PAVER PLACED SURFACE TREATMENT in accordance with the contract documents and as directed by the Engineer.

Paver Placed Surface Treatment consists of a polymer modified asphalt emulsion coat followed immediately with a thin hot mix asphalt wearing course.

MATERIALS:

Mix Designs: Formulate a job mix formula that satisfies the design limits listed in Table 1- Mixture Requirements and submit it to the Regional Materials Engineer for approval. The use of recycled asphalt pavement in these mixes is prohibited.

TABLE 1 - MIXTURE REQUIREMENTS ⁽¹⁾						
Sieve Sizes (inches)	Type A		Type B		Type C	
	Design Limits % Passing	Production Tolerance %	Design Limits % Passing	Production Tolerance %	Design Limits % Passing	Production Tolerance %
3/4					100	
1/2			100		85 - 100	± 4
3/8	100		85 - 100	± 4	60 - 90	± 4
1/4	85 - 100	± 4	30 - 55	± 4	30 - 55	± 4
No. 4	40 - 80	± 3	24 - 45	± 3	24 - 45	± 3
No. 8	21 - 45	± 3	21 - 37	± 3	21 - 37	± 3
No. 16	16 - 32	± 3	16 - 26	± 3	16 - 26	± 3
No. 30	12 - 25	± 2	12 - 20	± 2	12 - 20	± 2
No. 50	8 - 16	± 2	8 - 16	± 2	8 - 16	± 2
No. 100	5 - 10	± 2	5 - 10	± 2	5 - 10	± 2
No. 200	5 - 7	± 2	5 - 7	± 2	5 - 7	± 2
% PG Binder	4.9 - 5.4		4.8 - 5.2		4.8 - 5.2	

(1) All aggregate percentages are based on total mass of aggregate.

Aggregate: §703-02 except as modified herein. Use coarse aggregate with a minimum coarse-aggregate angularity (CAA) of 90% one fractured face and 85% two fractured faces. The aggregate's flakiness index shall meet the requirements of Materials Method 410.

1. Coarse Aggregate Type F1 Conditions.

- a. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.
- b. Gravel, a natural or a manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials meeting the following requirements:

Type A Mixes – Noncarbonate plus No. 8 particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 90.0% of plus No. 4 particles must be noncarbonate.

Type B Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 90.0% of plus No. 4 particles must be noncarbonate.

Type C Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 90.0% of plus 3/8 inch particles must be noncarbonate.

2. Coarse Aggregate Type F2 Conditions.

- a. Limestone, dolomite, or a blend of the two having an acid insoluble residue content of not less than 20.0%.
- b. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.
- c. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials, meeting the following requirements:

Type A Mixes – Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 particles must be noncarbonate.

Type B Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 particles must be noncarbonate.

Type C Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.

3. Coarse Aggregate Type F3 Conditions.

- a. Limestone, or a blend of limestone and dolomite having an acid insoluble residue content of not less than 20.0%.
- b. Dolomite.
- c. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.
- d. Gravel, a natural or a manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials, meeting the following requirements:

Type A Mixes – Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 particles must be noncarbonate.

Type B Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 inch particles must be noncarbonate.

Type C Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.

4. Fine Aggregate.

Use 100% screenings, free from deleterious materials and manufactured from sources of stone or slag meeting the requirements of §703-02, Coarse Aggregate, having a minimum sand equivalent of 60%, as determined by AASHTO T 176, "Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test."

Mineral Filler: § 703-08, Mineral Filler.

Asphalt Binder: §401-2.04 Performance-Graded Binder. Use the appropriate performance graded binder for the project's location.

Polymer Modified Asphalt Emulsion: § 702 - Bituminous Materials, 702-4001P.

EQUIPMENT:

1. **Paving.** Use a self-priming paver capable of spraying the polymer modified asphalt emulsion, applying the hot mix asphalt overlay and smoothing the surface of the mat in one pass. The self-priming paver must be equipped with a receiving hopper, feed conveyor, emulsion storage tank, metered high-pressure emulsion spray bar, and a variable width, heated screed. The screed must have the ability to be crowned at the center both positively and negatively and have vertically adjustable extensions to accommodate the desired pavement profile.
2. **Compaction.** Use steel wheeled double drum rollers weighing at least 10 tons, equipped with functioning water systems and scrapers to prevent material from adhering to the roller drums.
3. **Hauling.** Use vehicles that meet § 402-3.03, Hauling Equipment, to transport the hot mix asphalt wearing course.

CONSTRUCTION DETAILS:

Hot Mix Production: The requirements of §401-3, Construction Details apply with the following modifications. If a test value for any sieve varies from the target value by more than the production tolerance given in Table 1 - Mixture Requirements, the Regional Materials Engineer will evaluate the material represented by that test to determine acceptability.

A delivery ticket meeting the requirements of §401-4, Method of Measurement shall accompany each vehicle supplying hot mix asphalt.

Surface Preparation: Perform all surface preparation prior to applying the wearing course.

1. Thoroughly clean the entire area to be overlaid. The surface of the area to be overlaid must be free of dirt, oil, and other foreign materials. A damp surface is acceptable if favorable weather conditions are expected during paving operations.
2. Cover all manhole covers, water boxes, catch basins, and other such utility structures within the area to be paved with plastic, building felt, or other material approved by the Engineer. Reference each for location and adjustment after paving. Remove the covers each day.
3. Abrade pavement markings in accordance with contract documents.

Application: The requirements of § 402-3.01, Weather and Seasonal Limitations apply.

1. Apply the polymer modified asphalt emulsion at a temperature of 140 - 175°F. Provide a uniform application across the entire width to be overlaid, at a rate of 0.15 - 0.25 gallons/square yard. Continuously monitor the spray rate.
2. No equipment shall come in contact with the polymer modified asphalt emulsion before the hot mix asphalt wearing course is applied.
3. Immediately after applying the polymer modified asphalt emulsion, apply the hot mix asphalt overlay across the full width of the emulsion at a temperature of 290 - 325°F.
4. Apply the hot mix asphalt at a rate within the appropriate application range, listed in Table 2 – Wearing Course Application Ranges. The finished treatment has a minimum thickness of 1/2 inch for Type A, and 5/8 inch for Type B and Type C.
5. Paver Placed Surface Treatment shall not be applied to freshly placed concrete surfaces. Concrete surfaces must cure for a minimum of 90 days before being overlaid.

TABLE 2 - WEARING COURSE APPLICATION RANGES		
Type	Minimum (lb/yd ²)	Maximum (lb/yd ²)
A	60	70
B	65	75
C	70	80

Compaction: Begin compaction immediately after application of the wearing course. Use a minimum of two static passes. Avoid using vibratory compaction. The roller(s) will not be allowed to stop on the freshly placed wearing course. Use an adequate number of rollers to complete compaction before the pavement temperature falls below 185°F. Protect the wearing course from traffic until the rolling operation is complete and the material has cooled sufficiently to resist damage.

Paver and Equipment Cleaning: The requirement of § 402-3.12, Paver and Equipment Cleaning apply.

Coring: The Engineer will require four cores from each section of compacted paver placed surface treatment applied below the appropriate minimum application rate listed in Table 2. The Engineer will randomly locate the four core locations. The Engineer will determine the thickness of the paver placed surface treatment and reject sections not meeting the required minimum thickness.

The Engineer may require four cores from each section of compacted paver placed surface treatment exceeding the appropriate maximum application rate, listed in Table 2, to determine the thickness of the paver placed surface treatment. The Engineer may stop paving operations immediately if the over application of the paver placed surface treatment will create problems, such as, but not limited to, reducing overhead clearance, curb reveal or guiderail height. The Engineer and Contractor will agree upon and document a maximum application rate and maximum thickness to prevent problems created by over applying the paver placed surface treatment. The Engineer will reject any additional paver placed surface treatment sections determined to exceed the maximum agreed upon application rate and thickness.

Coring is not required for sections paved within the appropriate application range, listed in Table 2 - Wearing Course Application Ranges.

All labor, materials and equipment associated with required pavement coring, including maintenance and protection of traffic and filling core holes, will be done at the Contractor's expense.

METHOD OF MEASUREMENT: This work will be measured as the number of tons of Paver Placed Surface Treatment satisfactorily placed.

BASIS OF PAYMENT: The unit price bid shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work. All necessary pavement repairs, joint sealing, crack filling, pavement markings removal, milling of rebates and utility grade adjustments will be paid for under their appropriate items.

Payment will be made under:

<u>Item No.</u>	<u>Item</u>	<u>Pay Unit</u>
415.01010118	Paver Placed Surface Treatment Type A, F1	Tons
415.01020118	Paver Placed Surface Treatment Type A, F2	Tons
415.01030118	Paver Placed Surface Treatment Type A, F3	Tons
415.02010118	Paver Placed Surface Treatment Type B, F1	Tons
415.02020118	Paver Placed Surface Treatment Type B, F2	Tons
415.02030118	Paver Placed Surface Treatment Type B, F3	Tons
415.03010118	Paver Placed Surface Treatment Type C, F1	Tons
415.03020118	Paver Placed Surface Treatment Type C, F2	Tons
415.03030118	Paver Placed Surface Treatment Type C, F3	Tons

DETAILED SPECIFICATIONS – RUBBER MODIFIED PAVER PLACED SURFACE TREATMENT

415.0X0F0118R Rubber Modified Paver Placed Surface Treatment

DESCRIPTION:

This work shall consist of providing and placing ITEM 415.0X0F0118R – RUBBER MODIFIED PAVER PLACED SURFACE TREATMENT in accordance with the contract documents and as directed by the Engineer.

Rubber Modified Paver Placed Surface Treatment consists of a polymer modified asphalt emulsion coat followed immediately with a rubber modified thin hot mix asphalt wearing course.

MATERIALS:

Mix Designs: Formulate a job mix formula that satisfies the design limits listed in Table 1- Mixture Requirements and submit it to the Regional Materials Engineer for approval. The use of recycled asphalt pavement in these mixes is prohibited.

TABLE 1 - MIXTURE REQUIREMENTS ⁽¹⁾						
Sieve Sizes (inches)	Type A		Type B		Type C	
	Design Limits % Passing	Production Tolerance %	Design Limits % Passing	Production Tolerance %	Design Limits % Passing	Production Tolerance %
3/4					100	
1/2			100		85 - 100	± 4
3/8	100		85 - 100	± 4	60 - 90	± 4
1/4	85 - 100	± 4	30 - 55	± 4	30 - 55	± 4
No. 4	40 - 80	± 3	24 - 45	± 3	24 - 45	± 3
No. 8	21 - 45	± 3	21 - 37	± 3	21 - 37	± 3
No. 16	16 - 32	± 3	16 - 26	± 3	16 - 26	± 3
No. 30	12 - 25	± 2	12 - 20	± 2	12 - 20	± 2
No. 50	8 - 16	± 2	8 - 16	± 2	8 - 16	± 2
No. 100	5 - 10	± 2	5 - 10	± 2	5 - 10	± 2
No. 200	5 - 7	± 2	5 - 7	± 2	5 - 7	± 2
% PG Binder	5.8 - 6.4		5.8 - 6.4		5.8 - 6.4	

⁽¹⁾ All aggregate percentages are based on total mass of aggregate.

Aggregate: §703-02 except as modified herein. Use coarse aggregate with a minimum coarse-aggregate angularity (CAA) of 90% one fractured face and 85% two fractured faces. The aggregate’s flakiness index shall meet the requirements of Materials Method 410.

1. Coarse Aggregate Type F1 Conditions.

- a. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.
- b. Gravel, a natural or a manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials meeting the following requirements:

Type A Mixes – Noncarbonate plus No. 8 particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 90.0% of plus No. 4 particles must be noncarbonate.

Type B Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 90.0% of plus No. 4 particles must be noncarbonate.

Type C Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 90.0% of plus 3/8 inch particles must be noncarbonate.

2. Coarse Aggregate Type F2 Conditions.

- a. Limestone, dolomite, or a blend of the two having an acid insoluble residue content of not less than 20.0%.
- b. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.
- c. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials, meeting the following requirements:

Type A Mixes – Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 particles must be noncarbonate.

Type B Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 particles must be noncarbonate.

Type C Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.

3. Coarse Aggregate Type F3 Conditions.

- a. Limestone, or a blend of limestone and dolomite having an acid insoluble residue content of not less than 20.0%.
- b. Dolomite.
- c. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.
- d. Gravel, a natural or a manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials, meeting the following requirements:

Type A Mixes – Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 particles must be noncarbonate.

Type B Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus No. 4 inch particles must be noncarbonate.

Type C Mixes – Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.

4. Fine Aggregate.

Use 100% screenings, free from deleterious materials and manufactured from sources of stone or slag meeting the requirements of §703-02, Coarse Aggregate, having a minimum sand equivalent of 60%, as determined by AASHTO T 176, "Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test."

Mineral Filler: § 703-08, Mineral Filler.

Asphalt-Rubber Binder (ARB): The ARB shall consist of performance-graded binder and crumb rubber blended to conform to ASTM D6114, Standard Specification for Asphalt-Rubber Binder, Table 1, Type II with the following addition:

Minimum elastic recovery of 65% at 50°F using ASTM D6084, Elastic Recovery of Bituminous Material by Ductilometer, Procedure A.

- 1. Performance-Graded Binder (PGB).** Use the appropriate performance graded binder for the project's location.
- 2. Crumb Rubber.** Use crumb rubber conforming to ASTM D6114, section 3.2, Ground Recycled Tire Rubber, and meeting the gradation requirements given in Table 2 – Crumb Rubber Gradation. The crumb rubber shall be accepted by certification from the rubber supplier.

Sieve Size	% Passing
No. 30	100
No. 40	45-100

- 3. Anti-stripping Agent.** Contractor may add an anti-stripping agent that is heat stable into the ARB at the dosage required by the job-mix formula (up to 1.0% by weight of PGB). Add the anti-stripping agent to the PGB prior to blending with the crumb rubber.

Polymer Modified Asphalt Emulsion: § 702 - Bituminous Materials, 702-4001P.

EQUIPMENT:

- 1. Paving.** Use a self-priming paver capable of spraying the polymer modified asphalt emulsion, applying the hot mix asphalt overlay and smoothing the surface of the mat in one pass. The self-priming paver must be equipped with a receiving hopper, feed conveyor, emulsion storage tank, metered high-pressure emulsion spray bar, and a variable width, heated screed. The screed must have the ability to be crowned at the center both positively and negatively and have vertically adjustable extensions to accommodate the desired pavement profile.
- 2. Compaction.** Use steel wheeled double drum rollers weighing at least 10 tons, equipped with functioning water systems and scrapers to prevent material from adhering to the roller drums.
- 3. Hauling.** Use vehicles that meet § 402-3.03, Hauling Equipment, to transport the hot mix asphalt wearing course.

CONSTRUCTION DETAILS:

Hot Mix Production: The requirements of §401-3, Construction Details apply with the following modifications. If a test value for any sieve varies from the target value by more than the production tolerance given in Table 1 - Mixture Requirements, the Regional Materials Engineer will evaluate the material represented by that test to determine acceptability.

A delivery ticket meeting the requirements of §401-4, Method of Measurement shall accompany each vehicle supplying hot mix asphalt.

Surface Preparation: Perform all surface preparation prior to applying the wearing course.

1. Thoroughly clean the entire area to be overlaid. The surface of the area to be overlaid must be free of dirt, oil, and other foreign materials. A damp surface is acceptable if favorable weather conditions are expected during paving operations.
2. Cover all manhole covers, water boxes, catch basins, and other such utility structures within the area to be paved with plastic, building felt, or other material approved by the Engineer. Reference each for location and adjustment after paving. Remove the covers each day.
3. Abrade pavement markings in accordance with contract documents.

Application: The requirements of § 402-3.01, Weather and Seasonal Limitations apply.

1. Apply the polymer modified asphalt emulsion at a temperature of 140 - 175°F. Provide a uniform application across the entire width to be overlaid, at a rate of 0.15 - 0.25 gallons/square yard. Continuously monitor the spray rate.
2. No equipment shall come in contact with the polymer modified asphalt emulsion before the hot mix asphalt wearing course is applied.
3. Immediately after applying the polymer modified asphalt emulsion, apply the hot mix asphalt overlay across the full width of the emulsion at a temperature of 290 - 325°F.
4. Apply the hot mix asphalt at a rate within the appropriate application range, listed in Table 3 – Wearing Course Application Ranges. The finished treatment has a minimum thickness of 1/2 inch for Type A, and 5/8 inch for Type B and Type C.
5. Rubber Modified Paver Placed Surface Treatment shall not be applied to freshly placed concrete surfaces. Concrete surfaces must cure for a minimum of 90 days before being overlaid.

Type	Minimum (lb/yd ²)	Maximum (lb/yd ²)
A	60	70
B	65	75
C	70	80

Compaction: Begin compaction immediately after application of the wearing course. Use a minimum of two static passes. Avoid using vibratory compaction. The roller(s) will not be allowed to stop on the freshly placed wearing course. Use an adequate number of rollers to complete compaction before the pavement temperature falls below 185°F. Protect the wearing course from traffic until the rolling operation is complete and the material has cooled sufficiently to resist damage.

Paver and Equipment Cleaning: The requirement of § 402-3.12, Paver and Equipment Cleaning apply.

Coring: The Engineer will require four cores from each section of compacted paver placed surface treatment applied below the appropriate minimum application rate listed in Table 3. The Engineer will randomly locate the four core locations. The Engineer will determine the thickness of the paver placed surface treatment and reject sections not meeting the required minimum thickness.

The Engineer may require four cores from each section of compacted paver placed surface treatment exceeding the appropriate maximum application rate, listed in Table 3, to determine the thickness of the paver placed surface treatment. The Engineer may stop paving operations immediately if the over application of the paver placed surface treatment will create problems, such as, but not limited to, reducing overhead clearance, curb reveal or guiderail height. The Engineer and Contractor will agree upon and document a maximum application rate and maximum thickness to prevent problems created by over applying the paver placed surface treatment. The Engineer will reject any additional paver placed surface treatment sections determined to exceed the maximum agreed upon application rate and thickness.

Coring is not required for sections paved within the appropriate application range, listed in Table 3 - Wearing Course Application Ranges.

All labor, materials and equipment associated with required pavement coring, including maintenance and protection of traffic and filling core holes, will be done at the Contractor's expense.

METHOD OF MEASUREMENT: This work will be measured as the number of tons of Rubber Modified Paver Placed Surface Treatment satisfactorily placed.

BASIS OF PAYMENT: The unit price bid shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work. All necessary pavement repairs, joint sealing, crack filling, pavement markings removal, milling of rebates and utility grade adjustments will be paid for under their appropriate items.

Payment will be made under:

<u>Item No.</u>	<u>Item</u>	<u>Pay Unit</u>
415.01010118R	Rubber Modified Paver Placed Surface Treatment Type A, F1	Tons
415.01020118R	Rubber Modified Paver Placed Surface Treatment Type A, F2	Tons
415.01030118R	Rubber Modified Paver Placed Surface Treatment Type A, F3	Tons
415.02010118R	Rubber Modified Paver Placed Surface Treatment Type B, F1	Tons
415.02020118R	Rubber Modified Paver Placed Surface Treatment Type B, F2	Tons
415.02030118R	Rubber Modified Paver Placed Surface Treatment Type B, F3	Tons
415.03010118R	Rubber Modified Paver Placed Surface Treatment Type C, F1	Tons
415.03020118R	Rubber Modified Paver Placed Surface Treatment Type C, F2	Tons
415.03030118R	Rubber Modified Paver Placed Surface Treatment Type C, F3	Tons

(See next page for Bid Clarifications)

CLARIFICATIONS TO BID SPECIFICATION

Inquiry: “Bituminous Material-Pavement and Shoulders, Item 702-3301P (HFMS-2P) is listed in the Attachment 08 - Detailed Specifications – Liquid Bituminous Materials, under Chipseal. We don't believe it has been listed under Chipseal before. Should it be listed there?”

Response: Yes, in this Invitation for Bids Item 702-3301P (HFMS-2P) has been listed in *Section 410-2.01 A. Bituminous Material-Pavement and Shoulders* of Attachment 08 - Detailed Specifications under Chip Seal.

Inquiry: “In the old contract the Paver Placed Surface Treatment and Rubber Modified Paver Placed Surface Treatment Detailed Specifications stated (under materials) that the use of recycled asphalt in these mixes were prohibited. This is not mentioned in this new specifications.

Also, under the Application section in Table 3 the application ranges have changed from the previous contract. Is this correct or an error?

Under the materials section. The Type A Gradation in table 1 Mixture Requirements has changed from the old spec. Is this correct?

In the old specifications the Flakiness Max was 25 based off of Method 410, but in these specifications the Flakiness Max is 20. Is this correct or should it be 25?”

Response: Please see the new updated Paver Placed Surface Treatment and Rubber Modified Paver Placed Surface Treatment Detailed Specifications included on pages 4 to 13 of this Bid Solicitation Update.

Inquiry: “The Paver Placed Surface Treatment and Rubber Modified Paver Placed Surface Treatment Detailed Specifications don't say anything weather you should use a washed gradation or a dry gradation when testing the material. Which test should be used?”

Response: Washed gradations should be used for the hot mix design process. During production, QC monitors dry gradations. After award, please contact the Materials Bureau during production if issues are encountered. Please see the new updated Paver Placed Surface Treatment and Rubber Modified Paver Placed Surface Treatment Detailed Specifications included on pages 4 to 13 of this Bid Solicitation Update.

Inquiry: “The Fiber Reinforced Chip Seal has been eliminated from this Invitation for Bids. Why was it eliminated and could it be included back on this Invitation for Bids?”

Response: OGS has determined that the specified bid requirements sufficiently meet the needs of the Authorized Users. OGS declines to include the Fiber Reinforced Chip Seal in this Invitation for Bids.
