STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0016

JOHN ELIAS BALDACCI
GOVERNOR

DAVID A. COLE
COMMISSIONER

April 5, 2007
Subject: **Brunswick-Topsham**
Project No's IM-295-1293(000)E & IM-1296(400)E
Pin No's 12930.00 & 12964.00
Amendment No. 1

Dear Sir/Ms:

Please make the following changes to the Bid Documents.

In the Bid Book, REMOVE the existing "Special Provision, Section 403, Hot Mix Asphalt" dated March 16, 2007 one page total and REPLACE it with the attached updated "Special Provision, Section 403, Hot Mix Asphalt" dated April 4, 2007 one page total.

REMOVE the existing "Special Provision, Section 462, Gap-Graded HMA, (ultra thin bonded wearing course)" four pages total and REPLACE it with the attached updated "Special Provision, Section 462, Gap-Graded HMA,(ultra thin bonded wearing course)" dated April 4, 2007 four pages total.

Consider these changes prior to submitting your bid on April 11, 2007.

Sincerely,
Mark Bell For
Scott Bickford
Contracts & Specifications Engineer

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THE MAINE DEPARMENT OF TRANSPORTATION IS AN AFFIRMATIVE ACTION - EQUAL OPPORTUNITY EMPLOYER

April 4, 2007

SPECIAL PROVISION
SECTION 403
HOT MIX ASPHALT

Desc. of Course	Grad. Design	Item Number	Bit Cont. % of Mix	Total Thick	No. Of Layers	Comp. Notes
Wearing	½"	462.30	N/A	see typicals	1	1,4,10

COMPLEMENTARY NOTES

1. All work under this contract shall conform to the Special Provision – Section 462 - Ultra Thin Bonded Wearing Course.

4. The design shall meet the requirements of Type C under the 462 Special Provision.

10. Section 106.6 Acceptance, (2) Method D - For hot mix asphalt items designated as Method D in Special Provision Section 403 --Hot Mix Asphalt, one sample will be taken from the paver hopper or the truck body per **500** ton, per pay item. The mix will be tested for gradation and PGAB content. Disputes will not be allowed. If the mix is within the tolerances listed in Table 9 below the Department will pay the contract unit price.

Table 9

Property	USL and LSL	
		Method C
Percent Passing 4.75 mm [No. 4] and larger sieves		See table 1, Special Prov. 462
Percent Passing 2.36 mm [No. 8] to 1.18 mm [No. 16] sieves		See table 1, Special Prov. 462
Percent Passing 0.60 mm [No. 30]		See table 1, Special Prov. 462
Percent Passing 0.30 mm {No. 50] to 0.075 mm [No. 200] sieve		See table 1, Special Prov. 462
PGAB Content		Target ± 0.5
In –Place Density		N/A

If the test results for each **500** ton increment are outside these limits the following deductions (Table 9b) shall apply to the HMA quantity represented by the test. A second consecutive failing test shall result in cessation of production

TABLE 9b

PGAB Content	-5%
2.36 mm sieve	-2%
0.30 mm sieve	-1%
0.075 mm sieve	-2%
In-Place Density	N/A

Tack Coat

A tack coat of latex modified emulsified asphalt CRS-2, shall be applied to any existing pavement at a rate of approximately 0.15 - .25 gal/yd² prior to placing the wearing course. All joints between existing and new pavement will be tacked. See Special Provision 462 for specifics. Cleaning objectionable material from the pavement and furnishing and applying latex modified bituminous tack coat material to joints and contact surfaces is incidental.

SPECIAL PROVISION
SECTION 462
GAP-GRADED HMA
(Ultra Thin Bonded Wearing Course)

DESCRIPTION The Ultra thin Bonded Wearing Course consists of a warm polymer modified asphalt emulsion tack coat followed immediately with an ultra-thin hot mix asphalt wearing course. The tack coat is spray applied immediately prior to the application of the wearing course to produce a durable wearing surface that can be opened to traffic. The finished surface treatment has a minimum thickness of 12.5mm, (1/2"), for Type A and 16mm, (5/8"), for Type B and Type C. All pavement repairs, crack filling and joint filling will be paid for under the appropriate items.

MATERIALS

The contractor shall formulate and submit to the Department, a job mix formula (JMF) that satisfies the design general limits listed in Table 1 – Mixture requirements. The production tolerances customarily used by the Department for HMA shall apply. The JMF range shall not fall outside the general design limits.

Table 1 – Composite Gradation

AASHTO Standard Sieve Sizes Total % Passing by Weight

METRIC	US	Type A ¼"	Type B 3/8"	Type C ½"
19 mm	¾"	-	-	100
12.5 mm	½"	-	100	85-100
9.5 mm	3/8"	100	85-100	45-85
6.3 mm	¼"	70-100	30-50	30-50
4.75 mm	#4	40-60	24-41	24-41
2.36 mm	#8	21-33	21-33	21-33
1.18 mm	#16	15-26	15-26	15-26
0.60 mm	#30	11-20	11-20	11-20
0.30 mm	#50	8-16	8-16	8-16
0.15 mm	#100	5-10	5-10	5-10
0.075 mm	#200	4-7	4-7	4-7
%PGB		4.9 – 5.4	4.8 – 5.3	4.8 – 5.3

*Note: All aggregate percentages are based on the total weight of the aggregate. The composite gradation for each individual Type of mixture shall meet the gradation requirements of table 1.

COARSE AGGREGATE

The single size coarse aggregate shall be nominal 6.3 mm (1/4") for Type A, 9.5 mm (3/8") for Type B, and 12.5 mm (1/2") for Type C. These are recommended requirements only listed in Table 2 – Coarse Aggregate Gradations.

Table 2 – Coarse Aggregate Gradations

Total % Passing by Weight

Screen Size	A	B	C
12.5 mm, (1/2")		100	85-100
9.5 mm, (3/8")	100	85-100	25-80
6.3 mm, (1/4")	60-100	0-15	0-15
4.75 mm, (#4)	10-45	0-3	0-3
2.36 mm, (#8)	0-3		
1.18 mm, (#16)			

Coarse aggregates used shall be from an approved source. Where coarse aggregates for these mixes are from more than one source or of more than one type of material, they shall be proportioned and blended to provide a uniform mixture.

FINE AGGREGATE

The fine aggregate shall be 100% crushed. These are recommended requirements only listed in Table 3 – Fine Aggregate Gradations.

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Table 3 – Fine Aggregate Gradation

Screen Size	**% Passing**
4.75 mm, (#4)	**95-100**
2.36 mm, (#8)	**70-90**
1.18 mm, (#16)	**50-70**
0.60 mm, (#30)	**35-55**
0.30 mm, (#50)	**25-40**
0.15 mm, (#100)	**15-28**
0.075 mm, (#200)	**10-17**

AGGREGATES

Aggregates used shall be from an approved source and shall meet the requirements of section 703.07 for 3.0 to < 10 million ESALs except the changes or additions made by 1 through 7.

1. The Micro-Deval value shall 18 or less.

2. Absorption by AAHSTO T 85 shall be less than 2.0%.

3. It shall have a minimum sand equivalent of 45, (AASHTO T 176), and the fine aggregate shall be 100% crushed.

4. 95 % of the aggregate shall have at least a single face crushed and 85% shall have 2 or more crushed.

5. Aggregate shall have a maximum LA Abrasion of 35.

6. Percent by weight of Flat and Elongated particles shall be (5:1 ratio) with 10% maximum.

7. Soundness (AASHTO T 104-94) Magnesium Sulfate 18% maximum or Sodium Sulfate 12 % maximum.

MINERAL FILLER Hydrated lime, fly ash, baghouse fines and cement are acceptable as mineral filler.

Typical acceptable gradation: 100% passing 0.60 mm, (#30)
75-100% passing 0.075 mm, (#200).

ASPHALT BINDER Use PG 64-28.

TACK COAT Use grade CRS-2 asphalt emulsion modified with latex, natural or synthetic, and shall be certified as meeting the requirements of ASTM D2397 except as modified in Table 5 – Tack Coat Material Properties. It is required that the latex be co-milled at the bulk emulsion facility, to ensure complete and balanced blending.

Table 5 – Tack Coat Material Properties

Property	Method	Minimum	Maximum
Latex Content, % Mass of Total Residue		3.0	
Viscosity at 25 degrees C, (Sec.)	ASTM D244	20	100
Setting Time, Minutes	Observation	3	7
Demulsibility, % by wt. Residue	ASTM D244	40	

EQUIPMENT

PAVING The self-priming paver must be capable of spraying the tack coat, applying the hot asphalt overlay and smoothing the surface of the mat in one pass at the rate of 10-30 meters, (33-98 feet), per minute. The self-priming paver must incorporate a receiving hopper, feed conveyor, insulated storage tank for emulsion, metered tack coat spray bar and a variable width, heated, ironing type 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.

COMPACTION Use steel wheeled double drum roller weighing at least 7.25 to 9 metric tons, (8 to 10 ton), that are equipped with functioning water systems and scrappers to prevent the fresh mix from adhering to the roller drums.

CONSTRUCTION DETAILS

TRAFFIC CONTROL All Traffic Control to be provided by the Department.

SURFACE PREPARATION Contractor shall sweep the roadway as needed prior to surface the treatment. All other surface preparations shall be completed by the Department prior to applying the wearing course.

APPLICATION The minimum pavement surface temperature for application of the tack coat and placement of the wearing course is 15º C, (60º F.). Apply the tack coat at a temperature of 60º - 70º C, (140º - 160º F.). Provide a uniform application across the entire width to be overlaid, at a rate of 0.68 – 1.13 liters per square meter, (.15 - .25 gallons per square yard). Continuously monitor the rate of spray. No equipment shall come in contact with the tack seal coat before the hot mix asphalt concrete wearing course is applied. Immediately after applying the tack coat, apply the hot mix asphalt overlay across the full width of the tack coat at a temperature of 150º – 165º C., (300º - 325º F.).

COMPACTION Begin compaction immediately after the application of wearing course. Use a minimum of two passes. 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 85º C., (185º F.). Protect the wearing course from traffic until the rolling operation is complete and the material has cooled sufficiently to resist damage.

METHOD OF MEASUREMENT The Ultra Thin Bonded Wearing Course shall be measured by the square meter [square yard].

BASIS OF PAYMENT The accepted quantity of Ultra Thin Bonded Wearing Course will be paid for at the contract unit price per square meter [square yard], complete in-place which price will be full compensation for furnishing all equipment, material, labor and all incidentals necessary to complete the work.

Payments will be made under:

Pay Item	Pay Unit
462.30 - Ultra Thin Bonded Wearing Course	Square Meter [yd^2]