BID #WG20-48 SPECIFICATIONS

QC/QA procedures for use on all Baldwin County Projects

Definitions

County Engineer: The Engineer appointed by the Baldwin County Commission.

Supplier: The Company that is supplying the bituminous concrete for the project. Contractor: The crew that is responsible for laying and compacting mix on the

roadway.

1) QUALITY CONTROL.

a) Supplier shall have on site a Level II Asphalt Technician anytime they are producing mix for Baldwin County.

b) QC/QA TESTING

i) Sampling shall be performed in accordance with the sampling plan as stated in this specification. Samples will be randomly selected and obtained by the Supplier or BCHD and its affiliates. QC/QA samples shall be obtained at the project site but BCHD reserves the right to sample outside the sampling plan. A large enough sample shall be obtained so that it can be split between the Supplier, BCHD or its affiliates. Samples shall be tested for Air Voids, Liquid Asphalt Binder Content, Gradation, VMA, Effective AC Content, Dust/Asphalt Ratio, Stability, Flow, and Tensile Strength Ratio (TSR) as per table 3.

TABLE 3

Test Required	Test Method (Random Number)	Sampling Frequency * (100% Pay)	* Tolerances
Asphalt Content ++++	AASHTO T308 ALDOT 354	Supplier per 500 tons BCHD per Lot	+/34
Maximum Specific Gravity	AASHTO T209	Supplier per 500 tons BCHD per Lot	N/A
Mixture Gradation****	AASHTO T 308	Supplier per 500 tons BCHD per Lot	+/- 7.0 % for the #4 and above +/- 4.0 %, #8 to #100 +/- 2.00 % for the #200
Dust/Asphalt Ratio***	ALDOT 371	Supplier per 500 tons BCHD per Lot	0.90 to 1.80
Air Void Content & VMA++	ALDOT 353, 307	Supplier per 500 tons BCHD per Lot	+/-1.06%, 16.0 to 18.5
Marshall Stability and Flow ++		Supplier per 500 tons BCHD per Lot	1600, 8-18
Tensile Strength Ratio	ALDOT 361	Supplier & BCHD Minimur First 1000 tons and Every 10,000 ton thereafter	m .80

Each individual Maximum Theoretical Specific Gravity (MTSG) shall be used to calculate Air Voids.

- ** BCHD reserves the right to change sampling frequency; or sample outside the sample plan if it deems necessary. At least one sample shall be obtained from every project with tonnage less than 500.
- *** If the Dust/Asphalt is out on two consecutive tests, production shall cease until proper plant adjustments are made.
- **** If the test results are out of specification tolerance on two consecutive tests for the same size sieve, production shall cease until proper plant adjustments are made.
- **** Mix shall have a minimum of 3% retained on the 3/8" sieve, <u>No Exceptions</u>. Gradation tolerance of +/- 7% will not apply on the maximum control point unless the JMF is set at 90%; tolerance will extend to but not exceed 97% on the 3/8" sieve.
- ++ The sample shall be one set of three Marshall samples+++.
- ++++ Under AASHTO T 308, if an ignition furnace is used, mixture calibration shall be used.

2) ADJUSTMENT PERIOD (Test Strip).

- a) During start-up operations, an adjustment period (test strip) as described below shall be required when producing a new job mix formula. The purpose of the adjustment period will be to permit the Supplier to adjust his production process and for Supplier QC personnel and BCHD QA personnel to calibrate and coordinate their testing procedures. The Supplier has the option of running a test strip or waiving the test strip, if the proposed job mix formula has been produced satisfactorily on previous BCHD projects. The waiver of a test strip shall be in writing to the County Engineer prior to any production and placement of the previously produced job mix design. The Supplier assumes the risk of milling and relaying unacceptable mix with no additional compensation if the test strip is not utilized.
- b) A test strip of not more than 300 tons shall be produced. Production shall stop until the Supplier has completed one liquid asphalt binder content, one air void content, and gradation. The test results for AC and Air Voids shall meet the requirements in Table 5, 100% pay in the 1 Test column.
- c) For LOT Pay Factor purposes a LOT shall be defined as a single BCHD project, multiple BCHD projects (Completed in one day) or one day's production not to exceed a 1000 tons. For testing purposes, a lot shall be defined as 1000 tons (+- 200 tons). QC/QA testing shall run independent to the Pay Factor LOT when tonnages on one or more BCHD projects do not exceed 1000 tons. An ongoing tonnage total shall be maintained at each individual plant supplying mix to BCHD and sampling shall be performed every 500 tons with a minimum of one test per project. When two tests have been completed, along with referee samples if necessary, Pay Factors shall be calculated and applied to tonnage produced on that day. The County Engineer will round a testing increment or a LOT, if necessary, to the nearest truckload of material.

3) ACCEPTANCE OR REJECTION.

- a) The recommendation of the County Engineer and decision of the Baldwin County Commission will be final as to the acceptance, rejection, or acceptance at an adjusted payment of each LOT. Upon completion of a LOT (2nd test and/or any referee test completed) pay factors shall be calculated and applied only to the mix produced in that day's production. Rejected LOTS could be removed at no cost to the Department and replaced at BCHD unit price.
- b) The act of sampling shall be the responsibility of the Supplier utilizing the following sample plan. Suppliers shall use the random number method to determine sampling location in the testing increment. If any deviation from the sampling plan occurs BCHD reserves the right to sample an Independent Verification Sample (IVS) (outside of the scope of the sampling plan) at any time. Any Supplier test sampled from outside the sampling could be rejected and replace with the results of the IVS and used for pay factor computation.
- c) The Supplier shall sample the mixture and split it into three equal samples large enough to run the test required in this specification: The Supplier's primary QC sample (PQCS), BCHD primary QA sample (PQAS) and a Referee Sample (RS). The portions of mixture for the BCHD and referee sample shall be bagged, labeled, and stored for testing (max 60 days) if required. Bagged samples shall have the following bag appropriate information accompanying the sample: Date Sampled, Ton Sampled, Truck Sampled, Random Number, Sequential Test Number (STN), Project/Road Name, Mix Type, BCHD Primary Sample or Referee Sample, copy of the Scale Ticket, and a copy of Suppliers tests results. BCHD testing increment shall consist of two primary QA samples, split with the primary QC samples, which will represent 1000 tons of mix. Both the QA sample and referee samples will be stored in a dry location by the Supplier for a period of no longer than 14 days and may be disposed of prior to the 14 days if comparison sample results, pay factors and referee issues have been resolved. BCHD will randomly select one of the two samples stored for testing. Samples will be tested in an ALDOT certified independent lab and results will be compared to the Supplier results for comparison compliance.
- d) If the Supplier's primary QC sample and the BCHD primary QA sample do not compare within the Acceptable Tolerances listed in Table 4 then the referee sample will be tested at the Suppliers Lab. The referee sample shall be tested jointly by the Supplier and BCHD's representative and the results shall be used to calculate the pay factor for the lot. All results are final once the referee sample has been tested.
- e) For testing purposes, the PQCS shall be run in the Supplier's lab and BCHD reserves the right to run the PQAS in an ALDOT approved independent lab or the Suppliers lab. During the adjustment period (Test Strip) the BCHD will test its PQAS along with the Suppliers PQCS in the Suppliers lab. Also in the case where the results of the PQCS and the results of the PQAS do not compare the Referee Sample will be tested jointly in the Suppliers lab.

TABLE 4

COMPARISON OF BCHD AND SUPPLIER TESTING TEST ACCEPTABLE TOLERANCES

ASPHALT CONTENT $\pm 0.30 \%$ AIR VOIDS $\pm 0.50 \%$

ACCEPTANCE SCHEDULE OF PAYMENT FOR ASPHALT PLANT MIX CHARACTERISTICS.

TABLE 5

ACCEPTANCE SCHEDULE OF PAYMENT FOR ASPHALT PLANT MIX CHARACTERISTICS
Arithmetic Average of the Absolute Values of Deviations of the LOT Acceptance Tests from Job Mix
Formula Values

Asphalt Content*

LOT Pay Factor ->	1.00	0.98	0.95	0.90	0.80*
1 Test -	0.00-0.62	0.63-0.68	0.69-0.75	0.76-0.88	Over 0.88
2 Tests -	0.00-0.44	0.45-0.48	0.49-0.53	0.54-0.62	Over 0.62
	Voids in	Total Mix (Lab. (Compacted San	nples) *	
LOT Pay Factor ->	1.00	0.98	0.95	0.90	0.80*
1 Test -	0.00-2.50	2.51-2.70	2.71-3.00	3.01-3.5	Over 3.5
2 Tests -	0.00-1.77	1.78-1.91	1.92-2.12	2.13-2.47	Over 2.47

^{*} If approved by the Baldwin County Commission as recommended by the County Engineer, the Supplier may accept the indicated LOT partial payment. The Baldwin County Commission and/or County Engineer may require removal and replacement. If the LOT pay factor is greater than 0.80, the Supplier has the option to remove at no cost to the Department and to replace at contract unit bid price rather than accepting the reduced LOT payment. The only time the 1 Test row will be used is in the test strip and at the end of the annual contract if the second sample cannot be obtained due to low tonnage.

The lowest Pay Factor of the two criteria shall be applied to the LOT (for pay purposes as defined above).

BID #WG20-48 SPECIFICATIONS ALDOT BITUMINOUS PLANT MIX 424

Bituminous Plant Mix shall be in accordance with applicable portions of Section 410, Section 804 and Section 424 of the Alabama Department of Transportation Standard Specifications for Highway Construction, 2018 Edition, and any ALDOT Special Provisions which may supersede this publication.

Prospective Bidders should bid in accordance with the Alabama Department of Transportation Specifications which includes **Section 109.03** (e) regarding Bituminous Material Price Adjustments. This Section in effect allows that the Base Bid provided in the bid can be adjusted in accordance with the "Asphalt Index" as reported by ALDOT each month.

All Asphalt Index adjustment calculations shall be provided by the Vendor with each invoice. No invoice will be paid without these calculations.

Test reports shall be furnished daily with the delivery of materials, or as directed by County Engineer.

Prices shall be offered for product delivered F.O.B. to Baldwin County and at Bidders facility F.O.B. Baldwin County Vehicle. Location of such facility must be noted.

In the event that the awarded bidders Facility is not open for business then the secondary awarded bidder will become the prime supplier for that day. This will be noted by a notation being placed at the bottom of the request for materials by the County Representative that has contacted the awarded bidder.

Bidder must furnish to Baldwin County job sites on a daily basis, as ordered, a minimum of 1,000 tons, per operating crew, as needed. In the event the awarded bidder cannot comply with this requirement the bidder will be deemed not open for business and be non-compliant with the specifications.

Bids for product <u>delivered</u> F.O.B. to Baldwin County shall be considered on a per "Maintenance Area" basis with the Maintenance Areas delivered as shown on the attached map. Baldwin County will award on a "Per Area" basis and the vendors must give a price for each Mix delivered to each Maintenance Area in order for the entire bid to be considered.

Bid price for material being <u>picked up</u> from plant by Baldwin County shall be based on location of plant facility. The Vendor must provide a physical address of all plant facilities along with price for respective facility.

Should multiple vendors be awarded bids, and should a road cross between two (2) "Areas" with a different vendor for each Area, the lower price of the two vendors will be chosen to supply the mix chosen for that job. The intent of this bid arrangement is for Baldwin County to attract the lowest possible bid price for product supplied to the County by taking advantage of potential transportation cost swings.

If the Supplier cannot deliver the amount of material needed on the day of the order, the County at their sole discretion, may choose to pick up, or have delivered material from the nearest facility most convenient to the job site, whether it is the prime or secondary vendor, at the pickup or delivered price, by doing so the County will not violate the Bid Specifications. This in no way relieves the bidder from delivering the materials to the County.

The County also reserves the option, at their sole discretion, to pick up or have delivered material from the facility most convenient to the jobsite, whether it is the prime or secondary vendor, at the pickup or delivered price at the end of the day of the order that the supplier could not deliver the amount specified.

All Costs and expenses related to the supplier's failure to deliver material as and when specified, including without limitation the cost of the material itself, shall be borne solely by the supplier, and the County shall not be responsible or liable for any such cost or expenses.

Prices shall be provided as follows:

424A-280	Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum Aggregate Size
	Mix, ESAL Range E
424A-281	Superpave Bituminous Concrete Wearing Surface Layer, 3/4" Maximum Aggregate
	Size Mix, ESAL Range E
424A-336	Superpave Bituminous Concrete Wearing Surface Layer,
	3/8" Maximum Aggregate Size Mix, ESAL Range "A/B"
424A-340	Superpave Bituminous Concrete Wearing Surface Layer,
	1/2" Maximum Aggregate Size Mix, ESAL Range "A/B"
424A-341	Superpave Bituminous Concrete Wearing Surface Layer,
	3/4" Maximum Aggregate Size Mix, ESAL Range "A/B"
424A-360	Superpave Bituminous Concrete Wearing Surface Layer, 1/2" Maximum
	Aggregate Size Mix, ESAL Range C/D
424A-361	Superpave Bituminous Concrete Wearing Surface Layer, 3/4" Maximum Aggregate
	Size Mix, ESAL Range C/D
424B-293	Superpave Bituminous Concrete Upper Binder Layer, Widening, 1 1/2" Maximum
	Aggregate Size Mix, ESAL Range E
424B-635	Superpave Bituminous Concrete Upper Binder Layer,
	3/4" Maximum Aggregate Size Mix, ESAL Range "A/B"
424B-636	Superpave Bituminous Concrete Upper Binder Layer,
	1" Maximum Aggregate Size Mix, ESAL Range "A/B"
424B-637	Superpave Bituminous Concrete Upper Binder Layer,
.2.2 007	1 1/2" Maximum Aggregate Size Mix, ESAL Range "A/B"
424B-651	Superpave Bituminous Concrete Upper Binder Layer, 1" Maximum Aggregate Size Mix,
.2.2 301	ESAL Range C/D
424B-663	Superpave Bituminous Concrete Upper Binder Layer, Widening, 1 1/2"
1270 003	Maximum Aggregate Size Mix, ESAL Range C/D
	Maximum Magregue Size Min, ESTE Range C/D

CONTRACT PERIOD

It is the intent of the Baldwin County Commission to award this contract for a twelve (12) calendar month period.

BID #WG20-48 SPECIFICATIONS BALDWIN COUNTY BITUMINOUS PLANT MIX 723

The work under this Section covers the general requirements that are applicable to all types of hot and warm mix asphalt pavements of the plant mix type. Deviations from these general requirements will be indicated in the specific requirements noted in the following sections of these specifications. If the County Engineer determines there is insufficient Asphalt Cement coating on the aggregate or a lack of sufficient blending of RAP particles with the virgin aggregate because of the high percentage of RAP allowed in this specification and the inherent low temperatures used to produce WMA; the County Engineer may require a new Job Mix Formula (JMF) with a maximum of 20% RAP.

All ALDOT guidelines and polices shall apply to this mix except where noted below.

The ALDOT Standard Specification for Highway Construction shall apply except where noted below

BC 723 Materials

1) RECYCLED ASPHALT PLANT MIX (RAP) AND RECLAIMED ASPHALT SHINGLES (RAS).

a) ALLOWABLE USAGE OF RAP AND RAS

- i) The Supplier shall have the option to use RAP and RAS (Reclaimed Asphalt Shingles) in accordance with the requirements given. The total amount of RAP and RAS shall not exceed 35%.
- ii) The Supplier shall have the option to use any ratio of RAP (Recycled Asphalt Pavement) to virgin material from 0% to 35%.
- iii) RAS shall be limited to 5 % of the total aggregate content when the RAS is consumer waste (from roofing materials) and shall be limited to 5 % of the total aggregate content when the RAS is manufacturing waste.

2) **BLEND OF AGGREGATES**.

a) GRADATIONS FOR BLEND OF AGGREGATES

i) The coarse and fine aggregates, mineral filler, and recycled material shall be combined in a total blend that will produce an acceptable job mix within the gradation limits determined by the maximum and minimum control points shown in the following table.

TABLE 1

Job Mix Formula (JMF) Parameters

Sieve Size	% Passing by Weight
1/2" {12.5 mm}	100% *
3/8" {9.5 mm}	90% - 97% **
No. 4 {4.75 mm}	61% - 84%
No. 8 {2.36 mm}	41% - 64%
No. 16 {1.18 mm}	32% - 45%
No. 30 {600 mm}	21% - 39%
No. 50 {300 mm}	10% - 28%
No. 100 {150 mm}	6% - 20%
No. 200 {75 μm}	4% - 12%

Notes:

Mix shall be 100% passing the ½" sieve, No Exception,

** Mix shall have a minimum of 3% retained on the 3/8" sieve, No Exceptions. Gradation tolerance of +/- 7% will not apply on the maximum control point unless the JMF is set at 90%; tolerance will extend to 97%

3) MIX PROPERTIES

a) AIR VOIDS (Va)

i) The design air voids for this mix shall be 5.00%.

b) VOIDS IN MINERAL AGGREGATE (VMA)

i) The job mix shall be designed to produce a minimum VMA of 16.0 and a maximum of 18.5.

c) LIQUID ASPHALT BINDER CONTENT (Pb)

i) The job mix shall be designed at a minimum Liquid Asphalt Binder Content (Pb) of 5.80% and a maximum Liquid Asphalt Binder Content (Pb) of 7.50%. (Baldwin County has the right to lower the grade of virgin asphalt binder content if needed)

d) **DUST PROPORTION**

i) The ratio of the percent by weight {mass} of aggregate passing the No. 200 sieve to the effective asphalt content expressed as percent by weight {mass} of the total mix shall be between 0.9 and 1.80 for this mix. These ratio limits apply to both the design and production phases. Effective asphalt content is that asphalt cement not absorbed

into the aggregate pore structure and is determined according to Section 4.09 of the Asphalt Institute's, MS-2, *Mix Design Methods for Asphalt Concrete*.

e) RESISTANCE TO MOISTURE INDUCED DAMAGE

i) All mixes shall be designed and produced to have a tensile strength ratio (TSR) of at least 0.80 when compacted according to ALDOT-307 at seven percent air voids and tested in accordance with AASHTO T 283 as modified by ALDOT-361. If either TSR fails in production (Suppliers or BCHD representatives) another TSR will be run out of the referee sample, jointly by the Supplier and BCHD representatives in the Suppliers lab. If that TSR fails, the Baldwin County Commission and/or County Engineer shall determine whether the Supplier shall remove the tonnage in the lot at no cost to BCHD or leave it in place at a pay reduction.

4) **DESIGN PROCEDURES**

a) The 50 Blow Marshall Mix Design Method shall be used for this mix. The minimum Marshall Stability shall be 1600 and the flow values shall be 8 to 18.

Prospective Bidders should bid in accordance with the Alabama Department of Transportation Specifications which includes **Section 109.03** (e) regarding Bituminous Material Price Adjustments. This Section in effect allows that the Base Bid provided in the bid can be adjusted in accordance with the "Asphalt Index" as reported by ALDOT each month.

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All Costs and expenses related to the supplier's failure to deliver material as and when specified, including without limitation the cost of the material itself, shall be borne solely by the supplier, and the County shall not be responsible or liable for any such cost or expenses.

CONTRACT PERIOD

It is the intent of the Baldwin County Commission to award this contract for a twelve (12) calendar month period.

Bid <u>WG20-48</u> shall be used in conjunction with Bid <u>WG20-49</u>. Awarded bidder(s) of each bid shall work together to accomplish scope of work as directed by Baldwin County.

Maintenance Area - 100

Date:
Company Name:
Address:
Phone Number: ()
Fax Number: ()
Authorized Signature:
(Please Print or Type Name)
Position:
Supply Location:

Description Of Item	FOB Delivered Ar	<u>ea 100</u>
BC-723	\$	Ton
424A-280	\$	Ton
424A-281	\$	Ton
424A-336	\$	Ton
424A-340	\$	Ton
424A-341	\$	 Ton
424A-360	\$	Ton
424A-361	\$	Ton
424B-293	\$	 Ton
424B-635	\$	Ton
424B-636	\$	Ton
424B-637	\$	Ton
424B-651	\$	Ton
424B-663	\$	Ton
RAP	\$	Ton
Cold Mix Asphalt	\$	50 LB Bag

Maintenance Area - 200

Date:
Company Name:
Address:
Phone Number: ()
Fax Number: ()
Authorized Signature:
(Please Print or Type Name)
Position:
Supply Location:

Description Of Item	FOB Delivered Are	a 200
Ortem	Delivered Are	<u>a 200</u>
BC-723	\$	Ton
424A-280	\$	Ton
424A-281	\$	 Ton
424A-336	\$	— Ton
424A-340	\$	 Ton
424A-341	\$	 Ton
424A-360	\$	— Ton
424A-361	\$	Ton
424B-293	\$	— Ton
424B-635	\$	 Ton
424B-636	\$	 Ton
424B-637	\$	 Ton
424B-651	\$	 Ton
424B-663	\$	Ton
RAP	\$	Ton
Cold Mix Asphalt	\$	50 LB Bag

Maintenance Area - 300

Date:
Company Name:
Address:
Phone Number: ()
Fax Number: ()
Authorized Signature:
(Please Print or Type Name)
Position:
Supply Location:

Description Of Item	FOB Delivered A	rea 300
Ortun	Denvereu 21	1 Ca 300
BC-723	\$	Ton
424A-280	\$	Ton
424A-281	\$	Ton
424A-336	\$	Ton
424A-340	\$	Ton
424A-341	\$	Ton
424A-360	\$	Ton
424A-361	\$	Ton
424B-293	\$	Ton
424B-635	\$	Ton
424B-636	\$	Ton
424B-637	\$	Ton
424B-651	\$	Ton
424B-663	\$	Ton
RAP	\$	Ton
Cold Mix Asphalt	\$	50 LB Bag

Picked Up based on facility location

Date:	_
Company Name:	
Address:	
Phone Number: ()
Fax Number: ()	
Authorized Signatu	ıre:
	(Please Print or Type Name)
Position:	
Supply Location:	

Description	FOB	
Of Item	Shipping Point	
BC-723	\$	Ton
424A-280	\$	Ton
424A-281	\$	Ton
424A-336	\$	Ton
424A-340	\$	Ton
424A-341	\$	Ton
424A-360	\$	Ton
424A-361	\$	Ton
424B-293	\$	Ton
424B-635	\$	Ton
424B-636	\$	Ton
424B-637	\$	Ton
424B-651	\$	Ton
424B-663	\$	Ton
RAP	\$	Ton
Cold Mix Asphalt	\$	50 LB Bag

