

BID INVITATION

STANDARD CONDITIONS

M-03-186A

1. **ACCEPTANCE AND REJECTION:** The Arkansas State Highway and Transportation Department (AHTD) reserves the right to reject any or all bids, to accept bids in whole or in part (unless otherwise indicated by bidder), to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications where efficiency of operation will not be impaired, and to award bids to best serve the interest of the State.
2. **PRICES:** Unless otherwise stated in the Bid Invitation, the following will apply: (1) unit prices shall be bid, (2) prices should be stated in units of quantity specified (feet, each, lbs., etc.), (3) prices must be F.O.B. destination specified in bid, (4) prices must be firm and not subject to escalation, (5) bid must be firm for acceptance for 30 days from bid opening date. In case of errors in extension, unit prices shall govern. Discounts from bid price will not be considered in making awards.
3. **BID BONDS AND PERFORMANCE BONDS:** If required, a **Bid Bond** in the form of a cashier's check, certified check, or surety bond issued by a surety company, in an amount stated in the Bid Invitation, must accompany bid. **Personal and company checks are not acceptable as Bid Bonds.** Failure to submit a Bid Bond as required will cause a bid to be rejected. The Bid Bond will be forfeited as liquidated damages if the successful bidder fails to provide a required Performance Bond within the period stipulated by AHTD or fails to honor their bid. Cashier's checks and certified checks submitted as Bid Bonds will be returned to unsuccessful bidders; surety bonds will be retained. The successful bidder will be required to furnish a **Performance Bond** in an amount stated in the Bid Invitation and in the form of a cashier's check, certified check, or surety bond issued by a surety company, unless otherwise stated in the Bid Invitation, as a guarantee of delivery of goods/services in accordance with the specifications and within the time established in the bid. **Personal and company checks are not acceptable as Performance Bonds.** In some cases, a cashier's check or certified check submitted as a Bid Bond will be held as the Performance Bond of the successful bidder. Cashier's checks or certified checks submitted as Performance Bonds will be refunded shortly after payment has been made to the successful bidder for completion of all terms of the bid; surety bonds will be retained. Surety bonds must be issued by a surety company authorized to do business in Arkansas, and must be signed by a Resident Local Agent licensed by the Arkansas State Insurance Commissioner to represent that surety company. Resident Agent's Power-of-Attorney must accompany the surety bond. Certain bids involving labor will require Performance Bonds in the form of surety bonds only (no checks of any kind allowed). In such cases, the company issuing the surety bond must comply with all stipulations herein and must be named in the U. S. Treasury listing of companies holding Certificates of Authority as acceptable sureties on Federal Bonds and as acceptable reinsuring companies. Any excess between the face amount of the bond and the underwriting limitation of the bonding company shall be protected by reinsurance provided by an acceptable reinsuring company.
4. **TAXES:** The AHTD is not exempt from Arkansas State Sales and Use Taxes, or local option city/county sales taxes, when applicable, and bidders are responsible to the State Revenue Department for such taxes. These taxes should not be included in bid prices, but where required by law, will be paid by the AHTD as an addition thereto, and should be added to the billing to the AHTD. The AHTD is exempt from Federal Excise Taxes on all commodities except motor fuels; and excise taxes should not be included in bid prices except for motor fuels. Where applicable, tax exemption certificates will be furnished by the AHTD.
5. **"ALL OR NONE" BIDS:** Bidders who wish to bid "All or None" on two or more items shall so stipulate on the face of bid sheet; otherwise, bid may be awarded on an individual item basis.
6. **SPECIFICATIONS:** Complete specifications should be attached for any substitution or alternate offered, or where amplification is necessary. Bidder's name must be placed on all attachments to the bid.
7. **EXCEPTIONS TO SPECIFICATIONS:** Any exceptions to the bid specifications must be stated in the bid. Any exceptions to manufacturer's published literature must be stated in the bid, or it will be assumed that bidder is bidding exactly as stated in the literature.
8. **BRAND NAME REFERENCES:** All brand name references in bid specifications refer to that commodity or its equivalent, unless otherwise stated in Bid Invitation. Bidder should state brand or trade name of item being bid, if such name exists.
9. **FREIGHT:** All freight charges should be included in bid price. Any change in common carrier rates authorized by the Interstate Commerce Commission will be adjusted if such change occurs after the bid opening date. Receipted common carrier bills that reflect ICC authorized rate changes must be furnished.
10. **SAMPLES AND LITERATURE:** Samples or technical literature must be provided within 14 days of AHTD request unless AHTD extends time. Failure to provide samples or literature within this period may cause bid to be rejected. When required, samples of items must be furnished free of charge, prior to or after the opening of bids, and, if not destroyed, will be returned upon request at the bidder's expense. Each individual sample must be labeled with bidder's name and item number. Request for return of samples must be made within 10 days following submission of sample. Samples from successful bidders will be retained for comparison with items actually furnished.
11. **GUARANTY:** Unless otherwise indicated in Bid Invitation, it is understood and agreed that any item offered or shipped on this bid shall be newly manufactured, latest model and design, and in first class condition; and that all containers shall be new, suitable for storage or shipment and in compliance with all applicable laws relating to construction, packaging, labeling and registration.
12. **BACKORDERS OR DELAY IN DELIVERY:** Backorders or failure to deliver within the time required may constitute default. Vendor must give written notice to the AHTD, as soon as possible, of the reason for any delay and the expected delivery date. The AHTD has the right to extend delivery if reasons appear valid. If reason or delivery date is not acceptable, vendor is in default.
13. **DEFAULT:** All commodities furnished will be subject to inspection and acceptance by AHTD after delivery. Default in promised delivery or failure to meet specifications authorizes the AHTD to cancel award or any portion of same, to reasonably purchase commodities or services elsewhere and to charge full increase, if any, in cost and handling to defaulting vendor. Applicable bonds may be forfeited.
14. **ETHICS:** *"It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a State contract upon an agreement of understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by the contractor for the purpose of securing business."* (Arkansas Code, Annotated, Section 19-11-708).

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SPECIAL PROVISION

LIQUIDATED DAMAGES

As specified in the Contract, liquidated damages for this project will be as shown in the following table:

<u>ORIGINAL CONTRACT AMOUNT</u>			
<u>FROM MORE THAN</u>	<u>TO AND INCLUDING</u>	<u>FIXED DATE</u>	<u>WORKING DAY</u>
\$ 0	\$ 50,000	\$ 85	\$ 370
50,000	100,000	125	425
100,000	500,000	280	735
500,000	1,000,000	380	870
1,000,000	2,000,000	475	1270
2,000,000	5,000,000	500	1595
5,000,000	10,000,000	725	1710
10,000,000	-----	750	2085

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ASPHALT CONCRETE HOT MIX BASE, BINDER, AND SURFACE COURSES

Division 400 of the Standard Specifications for Highway Construction, Edition of 1996, is hereby amended as follows:

SECTION 404, DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES, IS AMENDED AS FOLLOWS:

The first paragraph of **subsection 404.01(a) General** is deleted and the following substituted therefor:

(a) General. The Contractor shall furnish one mix design for each of the particular asphalt mixtures listed on the plans or in the Contract. The mix design shall be performed by a laboratory that is on the Department's QPL of approved asphalt mix design laboratories and shall include the following:

- Type of mix (e.g., ACHM Base, Binder, and Surface Course).
- Design values for asphalt binder content, air voids, voids in mineral aggregate, and gradation.
- Source of each material to be used in production of the mix.
- Designation of the asphalt plant to be used for production of the mix.
- Name(s) of individual(s) who performed the sampling, testing, and preparation of the mix design and the name of the laboratory used.
- Optimum laboratory mixing and compacting temperatures.
- Temperature viscosity curves for the asphalt binder to be used in the mix.
- Performance grade of asphalt binder to be used in the mix.
- Copies of all test results and mix design work papers.
- Nine (9) blended 4800 gram aggregate samples.
- A Certification by the Contractor that the mix design was prepared according to the specifications and that the materials to be used are from sources approved by the Engineer.

Subsection 404.01(b), Design Requirements, is deleted and the following substituted therefor:

(b) Design Requirements. Each mix design shall be prepared by laboratory analysis according to the requirements of the specifications. Each mix design will establish a mix gradation for the aggregates (based on the weight of material passing specified screen sizes), an optimum asphalt binder content (expressed as a percentage of the total mix weight), an optimum laboratory mixing temperature, and an optimum laboratory compaction temperature. Optimum laboratory mixing and compaction temperatures shall be established based on temperature-viscosity curves of the asphalt binder to be used in the mix. The optimum asphalt content is the asphalt binder content at 4% Air Voids (AV) for PG 76-22 mixes and 4.5% Air Voids (AV) for PG 64-22 and PG 70-22 mixes. The mix design will be designed in accordance with the volumetric mix design procedures contained in AASHTO MP 2, its referenced standards, and the exceptions below:

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- PG 64-22 and PG 70-22 mixes will be designed using 4.5% air voids;
- the fine aggregate angularity will be determined in accordance with AASHTO TP33 Method A using the aggregate blend specific gravity of the minus 2.36 mm (No. 8) sieve through plus 0.15 mm (No. 100) sieve material;
- if any part of an ACHM Binder Course or an ACHM Base Course is within four inches of the pavement surface, the binder or base course lift shall comply with the angularity requirements for the top four inches of pavement;
- the gyratory compactor used in design, quality control, and acceptance testing must be a type evaluated by a Superpave Center and must meet the testing protocols for gyratory compactors;
- the VMA ranges will be as shown in this Supplemental Specification;
- the minimum requirement for one fractured aggregate face will be 98% and 80% for two fractured faces;
- water sensitivity will be determined using AHTD Test Method 455A. Copies of AHTD Test Methods are available from the Department.

The maximum number of gyrations (N_{max}) will be shown on the plans.

Asphalt binder shall comply with the requirements of AASHTO MP1 Table 1, except the Direct Tension requirements are deleted, and shall be from sources that have executed a certification agreement with the Department. Additives shall be approved by the Engineer. If an anti-strip additive is needed, a heat stable liquid anti-strip additive from the Qualified Products List shall be added at the rate of 0.5% or 0.75% by weight of the asphalt binder as determined by laboratory analysis.

The maximum theoretical density computed from the specific gravity as determined by the Rice method (AASHTO T 209) shall be included in the mix designs. The Contractor shall compute the effective specific gravity. A correction factor, accounting for the difference in the VMA(actual) determined by bulk specific gravity and the VMA(effective) determined by the effective specific gravity, shall be shown on the mix design. The mix design for each type of asphalt mix shall meet the design criteria for asphalt binder content, Air Voids (AV), Voids in Mineral Aggregate (VMA), fines to asphalt ratio, aggregate gradation, and water sensitivity.

The Contractor certified mix design shall provide for the design requirements for asphalt binder content, AV, VMA, fines to asphalt ratio, aggregate gradation, and water sensitivity specified for the particular mix.

The mix design gradation must fall within the master gradation limits for the specified type of mix.

If an acceptable pavement is not produced and it is determined that the accepted mix design is at fault, paving operations shall be stopped and the Contractor shall prepare a new mix design. The processing of proposed changes or new designs shall follow the same procedures as the initial mix designs.

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Subsection 404.03, Mixture Substitutions, is deleted and the following is substituted therefor:

Mixture Substitutions. Substitutions of specified courses will be allowed only on shoulders and incidental construction as follows:

1) ACHM Base Course (37.5 mm [1-1/2"]) may be replaced with:

ACHM Binder Course (25 mm [1"])

ACHM Surface Course (12.5 mm [1/2"])

ACHM Surface Course (9.5 mm [3/8"])

2) ACHM Binder Course (25 mm [1"]) may be replaced with:

ACHM Surface Course (12.5 mm [1/2"])

ACHM Surface Course (9.5 mm [3/8"])

3) ACHM Surface Course (12.5 mm [1/2"]) may be replaced with:

ACHM Surface Course (9.5 mm [3/8"])

Mixture substitution will be at the planned rate for the material for which the substitution is being made. Measurement for payment of all components of the mix will be based on the accepted mix design for the type specified on the plans or on the accepted mix design for the type used, whichever results in the lower cost per metric ton (ton) of mix to the Department. If no accepted mix design for the type specified on the plans is available, the mixture composition for payment will be based on the composition shown on the plans as the basis of estimate for the plan type or on the accepted mix design for the mix actually used, whichever results in the lower cost per metric ton (ton) of mix to the Department.

Subsection 404.04, Quality Control of Asphalt Mixtures, is amended as follows:

Note 2 of **Subsection 404.04** is deleted and the following substituted therefor:

NOTE 2: Test for AV (air voids) on samples prepared by gyratory compactor according to the volumetric mix design procedures in AASHTO MP 2.

THE TITLE OF **SECTION 405, ASPHALT CONCRETE HOT MIX STABILIZED BASE COURSE**, IS HEREBY CHANGED TO ASPHALT CONCRETE HOT MIX BASE COURSE AND THE FOLLOWING CHANGES ARE MADE THEREIN:

Subsection 405.02, Composition, is hereby deleted and left vacant.

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Subsections 405.03(a) & (b) are deleted and the following substituted therefor:

405.03 Materials. The materials used shall comply with Section 409 and this subsection. The materials shall be proportioned to meet the design requirements for asphalt concrete base course as shown in Table 405-1.

The design and quality control of ACHM base course mix shall be according to Section 404.

It is recommended that the ACHM Base Course gradation range designated as the restricted zone in Table 405-1 not be used in establishing an accepted mix design. If the ACHM Base Course gradation range designated as the restricted zone in Table 405-1 is used in establishing a mix design, the mix design must meet the requirements in Table 405-1 when tested in the Department's Asphalt Pavement Analyzer (APA). Mix production of mix designs established not utilizing the restricted zone gradation range may be within the restricted zone provided the production mix is within the gradation limits shown in the following table and the mix properties are within specified limits, but adjustments must be made to bring production mix gradation back outside of the restricted zone.

Subsection 405.05, Construction Requirements and Acceptance, is deleted and the following substituted therefor:

Construction Requirements and Acceptance. Construction requirements and acceptance shall conform to the requirements of Section 410. The required density shall be 92% to 96% of the maximum theoretical density. The required density for ACHM Base Course when placed in trench areas less than 1.8 m (6') in width shall be 90% to 96%.

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Table 405-1 is deleted and the following substituted therefor:

Table 405-1		
Design Requirements for Asphalt Concrete Hot Mix Base Course (37.5 mm [1-1/2"])		
	Control Points	Restricted Zone
Sieve (mm)	Percent Passing (%)	Percent Passing (%)
50.0 (2")	100	
37.5 (1½")	90 - 100	
25.0 (1")	90 max.	
4.75 (No. 4)		35 - 35
2.36 (No. 8)	15 - 41	23 - 27
1.18 (No. 16)		16 - 22
0.60 (No. 30)		12 - 16
0.30 (No. 50)		10 - 10
0.075 (No. 200)	0 - 6	
Asphalt Binder Content	Design Value	
% Air Voids	4.0 (PG 76-22 mixes) ; 4.5 (PG 64-22 & PG 70-22 mixes)	
% VMA	11.5 – 13.0	
Minimum Water Sensitivity Ratio	80.0	
% Anti-strip	As Required	
Fines to Asphalt Ratio*	0.6 - 1.2 (job mix above restricted zone) 0.8 – 1.6 (job mix below restricted zone)	
	Job Mix Through Restricted Zone	
Fines to Asphalt Ratio*	0.7 – 1.4	
Asphalt Pavement Analyzer (8000 cycles, 100 psi, 64°C)	Design Gyration	Maximum Rut
	75 & 115	8.000 mm(.315 in.)
	160	5.000 mm (.197 in.)
	205	3.000 mm (.118 in.)

*Fines to asphalt ratio shall be defined as the percent materials passing the 0.075 mm (No. 200) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

Subsection 405.07, **Basis of Payment**, is deleted and the following substituted therefor:

Basis of Payment. Work completed and accepted and measured as provided above will be paid for as follows:

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(a) Mineral aggregate will be paid for at the contract unit price bid per metric ton (ton) for Mineral Aggregate in ACHM Base Course. Mineral filler will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Mineral Aggregate.

In cases where the combined specific gravity of the mineral aggregate exceeds 2.80, the quantity of mineral aggregate will be adjusted for payment by multiplying the quantity of mineral aggregate used by a specific gravity of 2.80 and dividing by the higher specific gravity.

(b) Asphalt binder will be paid for at the contract unit price bid per metric ton (ton) for Asphalt Binder (PG ____) in ACHM Base Course (37.5 mm [1½"]). Anti-strip additives will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Asphalt Binder.

The contract unit prices mentioned above shall be full compensation for furnishing materials; for furnishing acceptable mix designs; for performing quality control and acceptance sampling and testing; for heating, mixing, hauling, placing, rolling, and finishing; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Mineral Aggregate in ACHM Base Course (37.5 mm [1-1/2"])	Metric Ton (Ton)
Asphalt Binder (PG ____) in ACHM Base Course (37.5 mm [1-1/2"])	Metric Ton (Ton)

SECTION 406, ASPHALT CONCRETE HOT MIX BINDER COURSE, IS AMENDED AS FOLLOWS:

The third paragraph of **Subsection 406.02, Materials**, is deleted and the following substituted therefor:

It is recommended that the ACHM Binder Course gradation range designated as the restricted zone in Table 406-1 not be used in establishing an accepted mix design. If the ACHM Binder Course gradation range designated as the restricted zone in Table 406-1 is used in establishing a mix design, the mix design must meet the requirements in Table 406-1 when tested in the Department's Asphalt Pavement Analyzer (APA). Mix production of mix designs established not utilizing the restricted zone range may be within the restricted zone provided the production mix is within the gradation limits shown in the following table and the mix properties are within specified limits, but adjustments must be made to bring production mix gradation back outside of the restricted zone.

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Table 406-1 is deleted and the following substituted therefor:

Table 406-1
 Design Requirements for Asphalt Concrete Hot Mix Binder Course (25 mm [1"])

	Control Points Percent Passing (%)	Restricted Zone Percent Passing (%)
Sieve (mm)		
37.5 (1½")	100	
25.0 (1")	90 - 100	
19.0 (¾")	90 max.	
4.75 (No. 4)		40 -40
2.36 (No. 8)	19 - 45	27 - 31
1.18 (No. 16)		18 - 24
0.60 (No. 30)		14 - 18
0.30 (No. 50)		11 - 11
0.075 (No. 200)	1 - 7	
Asphalt Binder Content	Design Value	
% Air Voids	4.0 (PG 76-22 mixes) ; 4.5 (PG 64-22 & PG 70-22 mixes)	
% VMA	12.5 – 14.0	
Minimum Water Sensitivity Ratio	80.0	
% Anti-strip	As Required	
Fines to Asphalt Ratio*	0.6 - 1.2 (job mix above restricted zone) 0.8 – 1.6 (job mix below restricted zone)	
	Job Mix Through Restricted Zone	
Fines to Asphalt Ratio*	0.7 – 1.4	
Asphalt Pavement Analyzer (8000 cycles, 100 psi, 64°C)	Design Gyration	Maximum Rut
	75 & 115	8.000 mm(.315 in.)
	160	5.000 mm (.197 in.)
	205	3.000 mm (.118 in.)

*Fines to asphalt ratio shall be defined as the percent materials passing the 0.075 mm (No. 200) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

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Subsection 406.06, Basis of Payment, is deleted and the following substituted therefor:

Basis of Payment. Work completed and accepted and measured as provided above will be paid for as follows:

(a) Mineral aggregate will be paid for at the contract unit price bid per metric ton (ton) for Mineral Aggregate in ACHM Binder Course (25 mm [1"]). Mineral filler will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Mineral Aggregate.

In cases where the combined specific gravity of the mineral aggregate exceeds 2.80, the quantity of mineral aggregate will be adjusted for payment by multiplying the quantity of mineral aggregate used by a specific gravity of 2.80 and dividing by the higher specific gravity.

(b) Asphalt binder will be paid for at the contract unit price bid per metric ton (ton) for Asphalt Binder (PG _____) in ACHM Binder Course (25 mm [1"]). Anti-strip additives will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Asphalt Binder.

The contract unit prices mentioned above shall be full compensation for furnishing materials; for furnishing acceptable mix designs; for performing quality control and acceptance sampling and testing; for heating, mixing, hauling, placing, rolling, and finishing; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Mineral Aggregate in ACHM Binder Course (25 mm [1"])	Metric Ton (Ton)
Asphalt Binder (PG _____) in ACHM Binder Course (25 mm[1"])	Metric Ton (Ton)

SECTION 407, ASPHALT CONCRETE HOT MIX SURFACE COURSE, IS AMENDED AS FOLLOWS:

The third paragraph of **Subsection 407.02, Materials**, is deleted and the following substituted therefor:

It is recommended that the ACHM Surface Course gradation range designated as the restricted zone in Tables 407-1 and 407-2 not be used in establishing an accepted mix design. If the ACHM Surface Course gradation range designated as the restricted zone in Tables 407-1 and 407-2 is used in establishing a mix design, the mix design must meet the requirements in Tables 407-1 or 407-2 when tested in the Department's Asphalt Pavement Analyzer (APA). Mix production of mix designs established not utilizing the restricted zone gradation range may be within the restricted zone provided the production mix is within the gradation limits

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shown in the following table and the mix properties are within specified limits, but adjustments must be made to bring production mix gradation back outside of the restricted zone.

Table 407-1 is deleted and the following substituted therefor:

Table 407-1		
Design Requirements for Asphalt Concrete Hot Mix Surface Course (12.5 mm [1/2"])		
Sieve (mm)	Control Points Percent Passing (%)	Restricted Zone Percent Passing (%)
19.0 (3/4")	100	
12.5 (1/2")	90 - 100	
9.5 (3/8")	90 max.	
2.36 (No. 8)	28 - 58	39 - 39
1.18 (No. 16)		26 - 32
0.60 (No. 30)		19 - 23
0.30 (No. 50)		15 - 15
0.075 (No. 200)	2 - 10	

Table 407-1 (continued)	
Asphalt Binder Content	Design Value
% Air Voids	4.0 (PG 76-22 mixes) ; 4.5 (PG 64-22 & PG 70-22 mixes)
% VMA	14.5 – 16.0
Minimum Water Sensitivity Ratio	80.0
% Anti-strip	As Required
Fines to Asphalt Ratio*	0.6 - 1.2 (job mix above restricted zone) 0.8 – 1.6 (job mix below restricted zone)
	Job Mix Through Restricted Zone
Fines to Asphalt Ratio*	0.7 – 1.4

Asphalt Pavement Analyzer (8000 cycles, 100 psi, 64°C)	Design Gyration	Maximum Rut
	75 & 115	8.000 mm(.315 in.)
	160	5.000 mm (.197 in.)
	205	3.000 mm (.118 in.)

*Fines to asphalt ratio shall be defined as the percent materials passing the 0.075 mm (No. 200) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

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Table 407-2		
Design Requirements for Asphalt Concrete Hot Mix Surface Course (9.5 mm [3/8"])		
	Control Points	Restricted Zone
Sieve (mm)	Percent Passing (%)	Percent Passing (%)
12.5 (1/2")	100	
9.5 (3/8")	90 - 100	
4.75 (No. 4)	90 max.	
2.36 (No. 8)	32 - 67	47 - 47
1.18 (No. 16)		32 - 38
0.60 (No. 30)		24 - 28
0.30 (No. 50)		19 - 19
0.075 (No. 200)	2 - 10	
Design Value		
Asphalt Binder Content	4.0 (PG 76-22 mixes) ; 4.5 (PG 64-22 & PG 70-22 mixes)	
% Air Voids	15.5 - 17.0	
% VMA	80.0	
Minimum Water Sensitivity Ratio	As Required	
% Anti-strip	0.6 - 1.2 (job mix above restricted zone)	
Fines to Asphalt Ratio*	0.8 - 1.6 (job mix below restricted zone)	
	Job Mix Through Restricted Zone	
Fines to Asphalt Ratio*	0.7 - 1.4	
Asphalt Pavement Analyzer (8000 cycles, 100 psi, 64°C)	Design Gyration	Maximum Rut
	75 & 115	8.000 mm(.315 in.)
	160	5.000 mm (.197 in.)
	205	3.000 mm (.118 in.)

*Fines to asphalt ratio shall be defined as the percent materials passing the 0.075 mm (No. 200) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

Subsection 407.06, Basis of Payment, is deleted and the following substituted therefor:

Basis of Payment. Work completed and accepted and measured as provided above will be paid for as follows:

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(a) Mineral aggregate will be paid for at the contract unit price bid per metric ton (ton) for Mineral Aggregate in ACHM Surface Course (_____). Mineral filler will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Mineral Aggregate.

In cases where the combined specific gravity of the mineral aggregate exceeds 2.80, the quantity of mineral aggregate will be adjusted for payment by multiplying the quantity of mineral aggregate used by a specific gravity of 2.80 and dividing by the higher specific gravity.

(b) Asphalt binder will be paid for at the contract unit price bid per metric ton (ton) for Asphalt Binder (PG _____) in ACHM Surface Course (_____). Anti-strip additives will not be paid for separately, but full compensation therefor will be considered included in the contract unit price bid for Asphalt Binder.

The contract unit prices mentioned above shall be full compensation for furnishing materials; for furnishing acceptable mix designs; for performing quality control and acceptance sampling and testing; for heating, mixing, hauling, placing, rolling, and finishing; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Mineral Aggregate in ACHM Surface Course (12.5 mm [1/2"])	Metric Ton (Ton)
Asphalt Binder (PG _____) in ACHM Surface Course (12.5 mm [1/2"])	Metric Ton (Ton)
Mineral Aggregate in ACHM Surface Course (9.5 mm [3/8"])	Metric Ton (Ton)
Asphalt Binder (PG _____) in ACHM Surface Course (9.5 mm [3/8"])	Metric Ton (Ton)

SECTION 409, MATERIALS AND EQUIPMENT FOR ASPHALT CONCRETE PLANT MIX COURSES, IS AMENDED AS FOLLOWS:

Subsection 409.01, Mineral Aggregate, is hereby deleted and the following substituted therefor:

409.01 Mineral Aggregates. Mineral aggregate for Asphalt Concrete Hot Mix Base Course, Asphalt Concrete Hot Mix Binder Course, Asphalt Concrete Hot Mix Surface Course, and Asphalt Concrete Cold Plant Mix shall consist of combinations of coarse aggregate, fine aggregate and mineral filler as provided for in the respective mix designs. Mineral aggregate shall consist of clean, hard, durable fragments of aggregate of

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uniform quality, free from an excess of soft particles, deleterious material and adherent films of clay. Eighty-five percent of the mineral aggregate shall be produced from larger particles by mechanical crushing operations.

Coarse aggregate shall comply with Table 409-1.

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Table 409-1
 Coarse Aggregate Properties

Coarse Aggregate	
Type	Crushed Gravel; Crushed Stone; Slag
Size	Plus 2.36 mm (No. 8)
Fractured Faces	
One Face	98 % min.
Two Faces	80 % min.
LA Abrasion (AASHTO T 96)	40 % max.
Sodium Sulfate Soundness (AASHTO T 104, 5 cycle)	12% max.
Flat, Elongated Particle	10 % max.
Wearing Surface Aggregate	
Limestone	60 % max.
Other ^{Note 1}	40 % min.

NOTE 1: Crushed sandstone, crushed siliceous gravel, syenite, novaculite, crushed slag, or mineral aggregate which has an insoluble residue not less than 85% when tested in a 1:1 solution of hydrochloric acid and water according to AHTD Test Method 306 shall be used as the remaining coarse mineral aggregate.

The fine aggregate shall comply with Table 409-2.

Table 409-2
 Fine Aggregate Properties

Fine Aggregate	
Type ^{Note 1}	Manufactured Sand; Natural Sand
Size	Minus 2.36 mm (No. 8)
Fine Aggregate Angularity ^{Note 2 & 3}	as specified in AASHTO MP 2
Sand Equivalent	as specified in AASHTO MP 2
Natural Sand Content	15 % max.
Coal and/or Lignite ^{Note 4}	2 % max.

NOTE 1: Manufactured sand shall be angular particles that have been produced from larger particles by mechanical crushing operations.

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NOTE 2: Test to be performed according to AASHTO TP33 Method A using the aggregate blend specific gravity of the minus 2.36 mm (No. 8) sieve through plus 0.15 mm (No. 100) sieve material.

NOTE 3: If any part of an ACHM Binder Course or an ACHM Base Course is used within 100 mm (4 inches) of the pavement surface, the binder or base course lift shall comply with the angularity requirements for the top 100 mm (4 inches) of pavement.

NOTE 4: The amount of coal and lignite shall be determined according to AASHTO T 113.

The following is added as the last sentence of the first paragraph of **Subsection 409.02**:

The asphalt binder shall be supplied from sources that have executed a certification agreement with the Department.

SECTION 410, CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES, IS HEREBY AMENDED AS FOLLOWS:

The following is added as the last sentence of the second paragraph of **Subsection 410.07**:

Water shall not be applied to the ACHM courses to speed cooling of the mat.

The first sentence of the seventh paragraph of **Subsection 410.08** is hereby deleted and the following substituted therefor:

The Contractor shall perform a maximum theoretical specific gravity test (AASHTO T 209) for each subplot. The VMA(effective) as determined by the effective specific gravity shall be calculated. The VMA(actual) shall be determined by reducing the VMA(effective) by the correction factor shown on the mix design.

The sixth paragraph of **Subsection 410.09(b)(1)** is hereby deleted and the following substituted therefor:

Two additional density tests will be performed by the Department on a statistically random basis within that subplot, except that only one additional test will be performed if the subplot contains both a Contractor subplot test and a Department lot test. If the average of the three tests is within 2.0 percentage points above or below the compliance limits, the subplot will be accepted. The average of the three test results will be used as a single value to compute the average for acceptance and adjustment of the lot.

Table 410-1 is hereby deleted and the following substituted therefor:

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**TABLE 410-1
 COMPLIANCE, PRICE REDUCTION, AND REJECTION LIMITS FOR ACHM COURSES**

Property	Lot Compliance Limits	Lot Price Reduction Limits	Lot Rejection Limits	Sublot Rejection Limits
Asphalt Binder Content (ALL MIXES)	± 0.3 from mix design value	more than ± 0.3, to ± 0.6 from mix design value	more than ± 0.6 from mix design value	± 0.8 from mix design value
Air Voids (AV) (ALL MIXES)	3.0% to 5.0%	2.5% to 3.0% 5.0% to 5.5%	2.4% or less; 5.6% or more	1.9% or less; 6.1% or more
Voids in Mineral Aggregate (VMA)*				
ACHM Base Course (37.5 mm [1 ½"])	11.0% to 13.0%	10.5% to 10.9%; 13.1% to 13.5%	10.4% or less; 13.6% or more	9.9% or less; 14.1% or more
ACHM Binder Course (25 mm [1"])	12.0% to 14.0%	11.5% to 11.9%; 14.1% to 14.5%	11.4% or less; 14.6% or more	10.9% or less; 15.1% or more
ACHM Surface Course (12.5 mm [½"])	14.0% to 16.0%	13.5% to 13.9%; 16.1% to 16.5%	13.4 % or less; 16.6% or more	12.9% or less; 17.1% or more
ACHM Surface Course (9.5 mm [3/8"])	15.0% to 17.0%	14.5% to 14.9%; 17.1% to 17.5%	14.4 % or less; 17.6% or more	13.9% or less; 18.1% or more
Density (% of theoretical) BASES, BINDER, AND SURFACES	92.0% to 96.0%	91.0% to 91.9%; 96.1% to 97.0%	90.9% or less 97.1% or more	89.9% or less** 98.1% or more
Density (% of theoretical) for ACHM Base Courses in trenches less than 1.8m (6') in width (Subsection 405.05)	90.0% to 96.0%	89.0% to 89.9%; 96.1% to 97.0%	88.9 % or less; 97.1% or more	87.9% or less**; 98.1% or more

* The values for VMA(actual) shall be determined by calculating the VMA(effective) and reducing it by the correction factor shown on the mix design.

**Subject to further evaluation, see text.

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The first sentence of the first paragraph of **Subsection 410.09(c)** is deleted and the following substituted therefor:

Any lot or subplot of any ACHM course that is not accepted for any reason shall be removed and replaced by the Contractor at no cost to the Department.

Subsections 410.09(d)(2), (3), (4), and (5) are hereby deleted and the following substituted therefor:

(2) For Air Voids, the contract price of the entire lot will be reduced by 10% for each deviation outside the compliance limits, up to a maximum of 5 deviations. One deviation is 0.1 percentage point.

(3) For VMA, the contract price of the entire lot will be reduced by 10% for each deviation outside the compliance limits, up to a maximum of 5 deviations. One deviation is 0.1 percentage point.

(4) For Density, the contract price of the entire lot will be reduced by 4% for each deviation outside the compliance limits up to a maximum of 10 deviations. One deviation is 0.1 percentage point.

The second bullet of **Subsection 410.10(a)** is hereby deleted and the following substituted therefor:

- the total variation, low to high, in air voids is no more than 0.6%, with none outside of the compliance limits.

Subsection 410.10(b) is hereby deleted and the following substituted therefor:

(b) An additional incentive payment of 2.0% will be added if the requirements of (a) above are met and if the VMA are within the compliance limits.

The second paragraph of **Subsection 410.12** is hereby deleted and the following substituted therefor:

Placement of ACHM Base Course and ACHM Binder Course shall be scheduled to minimize exposure to inclement weather. The amount of ACHM Base and/or Binder exposed at any time between December 1 and March 14 shall be limited to the area that can be covered with binder and/or surface course in one (1) day's normal production. Placing additional ACHM Base or Binder will not be allowed until the exposed course has been covered with binder and/or surface course. The succeeding course shall be placed as soon as weather and ground conditions allow.

SECTION 416, RECYCLED ASPHALT PAVEMENT, IS HEREBY AMENDED AS FOLLOWS:

The following is added at the end of the first paragraph of **Subsection 416.03, Materials and Composition:**

A temperature viscosity curve will not be required for the blend of virgin and Recycled Asphalt Pavement (RAP) material when the binder used is a PG 64-22 grade and the design incorporates less

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than 15% RAP. Overall blend angularity will be determined by extracting the aggregate from the RAP material and combining the extracted aggregate with the virgin mineral aggregate.