Control	**6473-10-001**
Project	**MMC - 647310001**
Highway	**SH0094**
County	**TRINITY**

ADDENDUM ACKNOWLEDGMENT

Each bidder is required to acknowledge receipt of an addendum issued for a specific project. This page is provided for the purpose of acknowledging an addendum.

FAILURE TO ACKNOWLEDGE RECEIPT OF AN ADDENDUM WILL RESULT IN THE BID NOT BEING READ.

In order to properly acknowledge an addendum place a mark in the box next to the respective addendum.

ADDENDUM NO. 1 ☐

ADDENDUM NO. 2 ☐

ADDENDUM NO. 3 ☐

ADDENDUM NO. 4 ☐

ADDENDUM NO. 5 ☐

In addition, the bidder by affixing their signature to the signature page of the proposal is acknowledging that they have taken the addendum(s) into consideration when preparing their bid and that the information contained in the addendum will be included in the contract, if awarded by the Commission or other designees.

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Control	**6473-10-001**
Project	**MMC - 647310001**
Highway	**SH0094**
County	**TRINITY**

PROPOSAL TO THE TEXAS TRANSPORTATION COMMISSION

2024 SPECIFICATIONS

WORK CONSISTING OF HOT MIX/TY SP, D, ASPPM & HMCL/TRINITY

TRINITY COUNTY, TEXAS

The quantities in the proposal are approximate. The quantities of work and materials may be increased or decreased as considered necessary to complete the work as planned and contemplated.

This project is to be completed in 180 calendar days and will be accepted when fully completed and finished to the satisfaction of the Executive Director or designee.

Provide a proposal guaranty in the form of a Cashier's Check, Teller's Check (including an Official Check) or Bank Money Order on a State or National Bank or Savings and Loan Association, or State or Federally chartered Credit Union made payable to the Texas Transportation Commission in the following amount:

FIVE THOUSAND (Dollars) **($5,000)**

A bid bond may be used as the required proposal guaranty. The bond form may be detached from the proposal for completion. The proposal may not be disassembled to remove the bond form. The bond must be in accordance with Item 10 of the specifications.

Any addenda issued amending this proposal and/or the plans that have been acknowledged by the bidder, become part of this proposal.

By signing the proposal the bidder certifies:

1. the only persons or parties interested in this proposal are those named and the bidder has not directly or indirectly participated in collusion, entered into an agreement or otherwise taken any action in restraint of free competitive bidding in connection with the above captioned project.
2. the signatory represents and warrants that they are an authorized signatory for the organization for which the bid is submitted and they have full and complete authority to submit this bid on behalf of their firm.
3. that the certifications and representations contained in the proposal are true and accurate and the bidder intends the proposal to be taken as a genuine government record.

- **Signed: ****

(1) _____ (2) _____ (3) _____

Print Name:

(1) _____ (2) _____ (3) _____

Title:

(1) _____ (2) _____ (3) _____

Company:

(1) _____ (2) _____ (3) _____

- Signatures to comply with Item 10 of the specifications.

**Note: Complete (1) for single venture, through (2) for joint venture and through (3) for triple venture.

*** When the calendar days field contains an asterisk (*) refer to the Special Provisions and General Notes.**

NOTICE TO CONTRACTORS

FOR THIS PROJECT THE AUDITED FINANCIAL PREQUALIFICATION REQUIREMENT IS WAIVED. ANY CONTRACTOR INTENDING TO BID ON THIS WORK MUST SUBMIT A COMPLETED "MATERIALS SUPPLIER'S QUESTIONNAIRE", WITH ANY ADDITIONAL INFORMATION REQUESTED IN THAT FORM, AT LEAST TEN DAYS PRIOR TO THE LETTING DATE.

CONTRACTORS THAT ARE CURRENTLY PREQUALIFIED BASED ON AN AUDITED FINANCIAL STATEMENT DO NOT NEED TO SUBMIT A "MATERIALS SUPPLIER'S QUESTIONNAIRE" SINCE THE NECESSARY INFORMATION IS CONTAINED IN THE AUDITED PREQUALIFICATION DOCUMENTS.

UNIT PRICES MUST BE SUBMITTED IN ACCORDANCE WITH ITEM 10 OF THE STANDARD SPECIFICATIONS OR SPECIAL PROVISION TO ITEM 10 FOR EACH ITEM LISTED IN THIS PROPOSAL.

TEXAS DEPARTMENT OF TRANSPORTATION

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS,

That we, (Contractor Name) _____

_____

Hereinafter called the Principal, and (Surety Name) _____

_____

a corporation or firm duly authorized to transact surety business in the State of Texas, hereinafter called the Surety, are held and firmly bound unto the Texas Department of Transportation, hereinafter called the Obligee, in the sum of not less than two percent (2%) of the department's engineer's estimate, rounded to the nearest one thousand dollars, not to exceed one hundred thousand dollars ($100,000) as a proposal guaranty (amount displayed on the cover of the proposal), the payment of which sum will and truly be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the principal has submitted a bid for the following project identified as:

Control	**6473-10-001**
Project	**MMC - 647310001**
Highway	**SH0094**
County	**TRINITY**

NOW, THEREFORE, if the Obligee shall award the Contract to the Principal and the Principal shall enter into the Contract in writing with the Obligee in accordance with the terms of such bid, then this bond shall be null and void. If in the event of failure of the Principal to execute such Contract in accordance with the terms of such bid, this bond shall become the property of the Obligee, without recourse of the Principal and/or Surety, not as a penalty but as liquidated damages.

Signed this _____ Day of _____ 20_____

By: _____

(Contractor/Principal Name)

_____

(Signature and Title of Authorized Signatory for Contractor/Principal)

*By: _____

(Surety Name)

_____

(Signature of Attorney-in-Fact)

*Attach Power of attorney (Surety) for Attorney-in-Fact

Impressed Surety Seal Only

This form may be removed from the proposal.

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BIDDER'S CHECK RETURN

IMPORTANT

The space provided for the return address must be completed to facilitate the return of your bidder's check. Care must be taken to provide a legible, accurate, and complete return address, including zip code. A copy of this sheet should be used for each different return address.

NOTE

Successful bidders will receive their guaranty checks with the executed contract.

RETURN BIDDERS CHECK TO (PLEASE PRINT):

Control	**6473-10-001**
Project	**MMC - 647310001**
Highway	**SH0094**
County	**TRINITY**

IMPORTANT

PLEASE RETURN THIS SHEET IN ITS ENTIRETY

Please acknowledge receipt of this check(s) at your earliest convenience by signing below in longhand, in ink, and returning this acknowledgement in the enclosed self addressed envelope.

Check Received By: _____ Date:_____

Title: _____

For (Contractor's Name): _____

Project _____ County_____

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NOTICE TO THE BIDDER

In the space provided below, please enter your total bid amount for this project. Only this figure will be read publicly by the Department at the public bid opening.

It is understood and agreed by the bidder in signing this proposal that the total bid amount entered below is not binding on either the bidder or the Department. It is further agreed that **the official total bid amount for this proposal will be determined by multiplying the unit bid prices for each pay item by the respective estimated quantities shown in this proposal and then totaling all of the extended amounts.**

$_____

Total Bid Amount

Control 0001-03-030
Project STP 2000(938)HES
Highway SH 20
County EL PASO

ALT	ITEM	DESC	SP	Bid Item Description	Unit	Quantity	Bid Price	Amount	Seq
	104	509		REMOV CONC (SDWLK)	SY	266.400	$10.000	$2,664.00	1

EXAMPLE

Total Bid Amount _____$2,664.00_____

Signed _____
Title _____
Date _____

Additional Signature for Joint Venture:

Signed _____
Title _____
Date _____

EXAMPLE OF BID PRICES SUBMITTED BY COMPUTER PRINTOUT

EXAMPLES

BID PRICES SUBMITTED BY HAND WRITTEN FORMAT

ALT	ITEM-CODE			UNIT BID PRICE ONLY WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC NO	S.P. NO.				
	190	026		RED OAK 1 1/2 - 1 3/4 GAL BB	EA	9.000	1
				EXAMPLE: One hundred fifty DLRS and No CENTS			

Unit price for each plant in place

	249	014		FLEX BASE(DEL)(DENSCOT)(TY A GR4 CL2)	TON	56,787.00	14
				EXAMPLE: Seven DLRS and Fifty three CENTS			

Unit price for each ton of Flexible Base

	430	001	001	CL A CONC FOR EXT STR (CULV)	CY	45.000	27
				EXAMPLE: Three hundred five DLRS and No CENTS			

Unit price for each cubic yard of Concrete

	610	007	001	RDWY ILL ASSEM(TY ST 50T-8-8)(.4 KW)S	EA	13.000	7
				EXAMPLE: Fourteen hundred sixteen DLRS and Thirty seven CENTS			

Unit price of each Roadway Illumination Assembly

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PROJECT MMC - 647310001
COUNTY TRINITY

Proposal Sheet
TxDOT
FORM 234-B I-61-5M

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	8011	7055		D-GR HMA TY D PG 64-22 (PICKUP) DOLLARS and CENTS	TON	1,000.000	1
	8011	7056		D-GR HMA TY D PG 64-22 (DEL) SITE 1 DOLLARS and CENTS	TON	1,000.000	2
	8017	7037		SP MIXTURES SP-C PG76-22 SAC A (PICKUP) DOLLARS and CENTS	TON	350.000	3

CERTIFICATION OF INTEREST IN OTHER BID PROPOSALS FOR THIS WORK

By signing this proposal, the bidding firm and the signer certify that the following information, as indicated by checking “Yes” or “No” below, is true, accurate, and complete.

A. Quotation(s) have been issued in this firm's name to other firm(s) interested in this work for consideration for performing a portion of this work.

_____ YES

_____ NO

B. If this proposal is the low bid, the bidder agrees to provide the following information prior to award of the contract.

1. Identify firms which bid as a prime contractor and from which the bidder received quotations for work on this project.
2. Identify all the firms which bid as a prime contractor to which the bidder gave quotations for work on this project.

GENERAL NOTES:

PROJECT DESCRIPTION: Provide Superpave Mixture TY C and Dense Graded Hot-Mix Type D (materials only) at the plant for pickup and Dense Graded Hot-Mix Type D (materials only) to be delivered for use on state-maintained roadways within the Trinity County Maintenance Section.

Contractor questions on this project are to be addressed to the following individual(s):

Preslie Gerland Lauren.Perry@txdot.gov
Jenna Hopper Jenna.Lenderman@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

TXDOT PROJECT SUPERVISORS: All work on this contract will be scheduled and directed by the Maintenance Section Supervisor listed below. Payment will be made monthly for work completed and accepted according to specifications. All payment requests should be directed to the following Maintenan6464-76-0ce Section Supervisor listed below.

COUNTY	SUPERVISOR	ADDRESS	CONTACT #
Trinity	David Wars	844 W. 1st Street Groveton, TX 75845	(936) 642-1132

CONTRACT PROSECUTION: Each contract awarded by the Department stands on its own and, as such, is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process any or all contracts at the same time.

Prior to beginning operations, the Department will arrange a preconstruction conference between representatives of the Department and the Contractor. In this meeting, the representatives from all parties will discuss the contract, proposed procedures, and the plans for performing the work while providing for safe passage of traffic at all times. Specifications, unusual conditions, and other pertinent items regarding the work will also be discussed.

SECTION 10.2 - INSTRUCTIONS TO BIDDERS:

View plans on-line or download from the web at:

https://www.txdot.gov/business/letting-bids/plans-online.html

Order plans from any of the plan reproduction companies shown on the web at:

http://www.dot.state.tx.us/business/contractors_consultants/repro_companies.htm

Bid items on this contract are listed to establish a unit price for each item. Certain items listed in the proposal may not be used if it is determined by the Engineer that the work will not be required. Actual work performed as directed will be paid utilizing these prices with no further compensation made regardless of the final quantities.

SECTION 10.4 - SCOPE OF WORK:

The contract may be extended twice if in the judgment of the Engineer, the contractor has satisfactorily fulfilled the terms and conditions of the contract. The extension must be agreed upon in writing by both parties to the contract and may be extended for an additional period of time not to exceed the original contract time period. The extended contract may be for additional quantities up to the original bid quantities plus any quantities added by an approved change order. The extensions shall meet the terms and conditions of the original contract or any mutually agreed modifications to the said terms and conditions by one or more cumulative change orders. The Engineer will set a deadline for completing the agreements. This deadline will be based in the time needed to re-let and award a new contract if no extension is agreed upon.

SECTION 10.8 - PROSECUTION AND PROGRESS:

Contract Time - The number of calendar days for this project shall be 180 days or until contract funds are expended. Calendar days will be charged in accordance with Article 10.8.2., "Contract Term".

For "pick-up" operations, have materials ready within the time frame listed on the work order, unless otherwise approved by the Engineer. Notify the Maintenance Section Supervisor when encountering any unforeseen delays.

Contractors will receive work orders for any needed quantities. These work orders will outline the quantities either being picked up at the plant or delivered to a designated work location. Each time work is requested on this contract, a work order will be completed.

All material delivery tickets must include the Work Order number and be signed, dated, and list the arrival/departure times by the Department representative upon arrival at final delivery location.

Failure to complete a work order will incur damages in accordance with Article 10.8.6. Actual damages incurred will be deducted from the work order payment and calculations will be provided upon request.

Providing material that does not meet the requirements of the specification does not constitute delivery and the Contractor may be required to remove all failed materials from the site. Applicable damages may continue to accrue until the Contractor delivers materials in full compliance to the designated site.

SECTION 10.9 – MEASUREMENT AND PAYMENT:

Contractor is responsible for obtaining annual overweight tolerance permit if hauling material which exceeds the legal road weight.

Trucks may be held for up to 2 hr at the jobsite at no additional expense to the Department. Written documentation of arrival will be used when calculating demurrage charges and included on an invoice submitted to the managing office. The Department will specify the arrival time and delivery frequency on the work order provided to the Contractor. If the Contractor arrives prior to the specified delivery time, the 2 hr hold will not begin until the arrival time specified on the work order.

Contractor will provide demurrage rate per truck, per 15-min increment, at the Coordination call prior to beginning work on the Contract.

Demurrage charges will be invoiced in 15-min increments, rounded down to the nearest whole increment. Contractor will be required to provide documentation for the demurrage per truck.

ITEM 500: MOBILIZATION

Mobilization does not apply to this materials contract.

ITEM 8017: SUPERPAVE MIXTURE (MATERIALS ONLY)

No Department-owned RAP is available.

Use aggregate that meets the SAC requirements of Class A.

Use of a substitute PG binder one grade below the PG binder specified will be allowed as long as the material meets the originally specified binders Hamburg requirements. The above criteria must continue to be met during production, and additional tests will be performed at a frequency determined by the engineer. Binder substitution is limited to a reduction in one high temperature grade. The limitation does not apply to low temperature grade. Binder substitution is allowed when aged recycled binder is used.

Add hydrated lime to all HMA mixtures at a minimum rate of 1.0% by weight of the total aggregate, except for those mixtures containing RAP and/or RAS. Mixtures that contain RAP and/or RAS shall be designed at a minimum rate of 0.5 % of lime by weight and the test results will be evaluated by the engineer to determine if lime or a liquid anti-strip additive will be used.

Trial batches may be required whenever the design has not been produced in the previous 12 months. Trial batches will be subsidiary to the bid item.

On Table 1, the Sand equivalent, %, Min is void and not replaced. The minimum percent for the sand equivalent shall be 45 for the combined aggregate.

ITEM 8011: DENSE-GRADED HOT-MIX ASPHALT (SMALL QUANTITY) (MATERALS ONLY)

No RAS will be allowed. Use aggregate that meets the SAC requirement of Class B. Use a Texas Gyratory Compactor (TGC) or a Superpave Gyratory Compactor (SGC) to design the mixture.

Add hydrated lime to all HMA mixtures at a minimum rate of 1.0% by weight of the total aggregate, except for those mixtures containing RAP. Mixtures that contain RAP and/or RAS shall be designed at a rate of minimum 0.5% of lime by weight and the test results will be evaluated by the engineer to determine if lime or a liquid anti-strip additive will be used.

For Pick Up Operations**:**

- Contractor will have material ready for pick-up on the mutually agreed upon day and time.

- Contractor pick-up site will be no further than fifty (50) miles from the County Maintenance Yard.

CONTROL : 6473-10-001
PROJECT : MMC - 647310001
HIGHWAY : SH0094
COUNTY : TRINITY

TEXAS DEPARTMENT OF TRANSPORTATION

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION SEPTEMBER 1, 2024. STANDARD SPECIFICATIONS ARE INCORPORATED INTO THE CONTRACT BY REFERENCE.

ITEM 10 MAINTENANCE AND TRAFFIC MATERIALS CONTRACTS

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL PROVISION "NONDISCRIMINATION" (000---001)
SPECIAL PROVISION "CERTIFICATE OF INTERESTED PARTIES (FORM 1295)" (000---017)

SPECIAL SPECIFICATIONS:

ITEM 8011 DENSE-GRADED HOT-MIX ASPHALT (MATERIALS ONLY)
ITEM 8017 SUPERPAVE MIXTURES (MATERIALS ONLY)

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL PROVISIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFICATIONS FOR THIS PROJECT.

CHILD SUPPORT STATEMENT

Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

CONFLICT OF INTEREST CERTIFICATION

Pursuant to Texas Government Code Section 2261.252(b), the Department is prohibited from entering into contracts in which Department officers and employees have a financial interest.

By signing the Contract, the Contractor certifies that it is not prohibited from entering into a Contract with the Department as a result of a financial interest as defined under Texas Government Code Section 2261.252(b), and that it will exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict of interest with the Department.

The Contractor also certifies that none of the following individuals, nor any of their family members within the second degree of affinity or consanguinity, owns 1% or more interest or has a financial interest as defined under Texas Government Code Section 2261.252(b) in the Contractor:

- Any member of the Texas Transportation Commission; and
- The Department's Executive Director, General Counsel, Chief of Procurement and Field Support Operations, Director of Procurement, and Director of Contract Services.

Violation of this certification may result in action by the Department.

E-VERIFY CERTIFICATION

Pursuant to Texas Transportation Code §223.051, all TxDOT contracts for construction, maintenance, or improvement of a highway must include a provision requiring Contractors and subcontractors to use the U.S. Department of Homeland Security's E-Verify system to determine employment eligibility. By signing the contract, the Contractor certifies that prior to the award of the Contract:

- the Contractor has registered with and will, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the Contract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement; and
- the Contractor will require that all subcontractors also register with and, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the subcontract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement.

Violation of this requirement constitutes a material breach of the Contract, subjects a subcontractor to removal from the Contract, and subjects the Contractor or subcontractors to possible sanctions in accordance with Title 43, Texas Administrative Code, Chapter 10, Subchapter F, "Sanctions and Suspension for Ethical Violations by Entities Doing Business with the Department."

Certification Regarding Disclosure of Public Information

Pursuant to Subchapter J, Chapter 552, Texas Government Code, contractors executing a contract with a governmental body that results in the expenditure of at least $1 million in public funds must:

1) preserve all contracting information* as provided by the records retention requirements applicable to Texas Department of Transportation (TxDOT) for the duration of the contract,
2) on request of TxDOT, promptly provide any contracting information related to the contract that is in the custody or possession of the entity, and
3) on completion of the contract, either:
    A. provide, at no cost to TxDOT, all contracting information related to the contract that is in the custody or possession of the entity, or
    B. preserve the contracting information related to the contract as provided by the records retention requirements applicable to TxDOT

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

By entering into Contract, the Contractor agrees to:

- provide, or make available, to TxDOT and any authorized governmental investigating or auditing agency all records, including electronic and payment records related to the contract, for the same period provided by the records retention schedule applicable to TxDOT, and
- ensure that all subcontracts include a clause requiring the same.

* As defined in Government Code §552.003, "Contracting information" means the following information maintained by a governmental body or sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor:

1) information in a voucher or contract relating to the receipt or expenditure of public funds by a governmental body;
2) solicitation or bid documents relating to a contract with a governmental body;
3) communications sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor during the solicitation, evaluation, or negotiation of a contract;
4) documents, including bid tabulations, showing the criteria by which a governmental body evaluates each vendor, contractor, potential vendor, or potential contractor responding to a solicitation and, if applicable, an explanation of why the vendor or contractor was selected; and
5) communications and other information sent between a governmental body and a vendor or contractor related to the performance of a final contract with the governmental body or work performed on behalf of the governmental body.

CERTIFICATION TO NOT BOYCOTT ISRAEL

Pursuant to Texas Government Code §2271.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott Israel, as defined in Government Code §808.001, and will not boycott Israel during the term of the contract. This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott Israel and will not boycott Israel during the term of this contract. “Boycott” means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

Violation of this certification may result in action by the Department.

CERTIFICATION TO NOT BOYCOTT ENERGY COMPANIES

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott energy companies, as defined in Government Code §809.001, and will not boycott energy companies during the term of the contract. This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott energy companies and will not boycott energy companies during the term of this contract. “Boycott” means taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company: (1) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; or (2) does business with a company described by (1).

Violation of this certification may result in action by the Department.

CERTIFICATION TO NOT DISCRIMINATE AGAINST FIREARM ENTITIES OR FIREARM TRADE ASSOCIATIONS

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor:

1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, as defined in Government Code §2274.001, and
2) will not discriminate against a firearm entity or firearm trade association during the term of the contract.

This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not discriminate against a firearm entity or firearm trade association as described and will not do so during the term of this contract. "Discriminate against a firearm entity or firearm trade association" means, with respect to the entity or association, to: (1) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association; (2) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or (3) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association. "Discriminate against a firearm entity or firearm trade association" does not include: (1) the established policies of a merchant, retail seller, or platform that restrict or prohibit the listing or selling of ammunition, firearms, or firearm accessories; (2) a company's refusal to engage in the trade of any goods or services, decision to refrain from continuing an existing business relationship, or decision to terminate an existing business relationship to comply with federal, state, or local law, policy, or regulations or a directive by a regulatory agency, or for any traditional business reason that is specific to the customer or potential customer and not based solely on an entity 's or association's status as a firearm entity or firearm trade association.

Violation of this certification may result in action by the Department.

Special Provision to Item 000
Nondiscrimination

1. DESCRIPTION

All recipients of federal financial assistance are required to comply with various nondiscrimination laws, including Title VI of the Civil Rights Act of 1964, as amended (Title VI). Title VI forbids discrimination against anyone in the United States on the grounds of race, color, or national origin by any agency receiving federal funds.

The Texas Department of Transportation, as a recipient of federal financial assistance, and under Title VI and related statutes, ensures that no person will on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment in accordance with 42 USC 2000d-3), color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any Department programs or activities.

2. DEFINITION OF TERMS

Where the term "Contractor" appears in the following six nondiscrimination clauses, the term "Contractor" is understood to include all parties to Contracts or agreements with the Department.

3. NONDISCRIMINATION PROVISIONS

During the performance of this Contract, the Contractor agrees as follows.

3.1. **Compliance with Regulations**. The Contractor must comply with the Regulations pertinent to nondiscrimination in federally assisted programs of the United States Department of Transportation 49 CFR 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Contract.

3.2. **Nondiscrimination**. The Contractor, regarding the work performed during the Contract, must not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor must not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

3.3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment**. In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, the Contractor must notify each potential subcontractor or supplier of the Contractor's obligations under this Contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

3.4. **Information and Reports**. The Contractor must provide all information and reports required by the Regulations or directives issued pursuant thereto, and must permit access to its books, records, accounts, other sources of information, and facilities as may be determined by the Recipient or the Department to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor must so certify to the Recipient, or the Department as appropriate, and must set forth what efforts it has made to obtain the information.

3.5. **Sanctions for Noncompliance**. In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the Recipient must impose such Contract sanctions as it or the Department may

determine to be appropriate, including, but not limited to actions defined in Article 7.1., “Ethics,” or Article 5.1., “Authority of Engineer.”

3.6. **Incorporation of Provisions**. The Contractor must include the provisions of Sections 3.1–3.6 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor must take such action with respect to any subcontract or procurement as the Recipient or the Department may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that, in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the Recipient to enter into such litigation to protect the interests of the Recipient, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Special Provision 000
Certificate of Interested Parties (Form 1295)

Submit Form 1295, "Certificate of Interested Parties," in the following instances:

- at Contract execution for Contracts awarded by the Commission,
- at Contract execution for Contracts awarded by the District Engineer or Chief Engineer with an award amount of $1 million or more,
- at any time an existing Contract awarded by the District Engineer or Chief Engineer increases in value to $1 million or more because of changes in the Contract,
- at any time there is an increase of $1 million or more to an existing Contract (e.g., change orders, extensions, and renewals), and
- at any time there is a change to the information in Form 1295, when the form was filed for an existing Contract.

Form 1295 and instructions for completing and filing the form are available on the Texas Ethics Commission website.

Special Specification 8011
Dense-Graded Hot-Mix Asphalt (Materials Only)

1. DESCRIPTION

Provide a hot-mix asphalt (HMA) material composed of a dense-graded mixture of aggregate and asphalt binder mixed hot in a mixing plant. This Specification is intended for small quantity (SQ) HMA projects, typically under 5,000 tons per work order.

2. MATERIALS

Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications.

Notify the Engineer of all material sources and before changing any material source or formulation. The Engineer will verify that the specification requirements are met when the Contractor makes a source or formulation change, and may require a new laboratory mixture design, trial batch, or both. Any subsequent mention of testing in this Specification will not be required by either the Engineer or Contractor unless the Engineer determines a need for the testing.

2.1. **Aggregate**. Furnish aggregates from sources in accordance with the requirements shown in Table 1 and this Section. Aggregate requirements in this Section, including those shown in Table 1, may be modified or eliminated when shown on the plans. Additional aggregate requirements may be specified when shown on the plans. Provide aggregate stockpiles that meet the definitions in this Section for coarse, intermediate, or fine aggregate. Aggregate from reclaimed asphalt pavement (RAP) is not required to meet Table 1 requirements unless otherwise shown on the plans. Supply aggregates that meet the definitions in Tex-100-E for crushed gravel or crushed stone. The Engineer will designate the plant or the quarry as the sampling location. Provide samples from materials produced for the project. The Engineer will establish the surface aggregate classification (SAC) and perform Los Angeles abrasion, magnesium sulfate soundness, and Micro-Deval tests. Perform all other aggregate quality tests listed in Table 1. Document all test results on the mixture design report. The Engineer may perform tests on independent or split samples to verify Contractor test results. Stockpile aggregates for each source and type separately. Determine aggregate gradations for mixture design and production testing based on the washed sieve analysis given in Tex-200-F, Part II.

2.1.1. **Coarse Aggregate**. Coarse aggregate stockpiles must have no more than 20% material passing the No. 8 sieve. Aggregates from sources listed in the Department's *Bituminous Rated Source Quality Catalog* (BRSQC) are preapproved for use. Use only the rated values for hot-mix listed in the BRSQC. Rated values for surface treatment (ST) do not apply to coarse aggregate sources used in hot-mix asphalt.

For sources not listed on the Department's BRSQC:

- build an individual stockpile for each material;
- request the Department test the stockpile for specification compliance;
- allow 30 calendar days for the Engineer to sample, test, and report results;
- use only when tested and approved; and
- once approved, do not add material to the stockpile unless otherwise allowed.

Provide coarse aggregate with at least the minimum SAC shown on the plans. SAC requirements apply only to aggregates used on the surface of travel lanes, unless otherwise shown on the plans. The SAC for sources on the Department's *Aggregate Quality Monitoring Program* (AQMP) (Tex-499-A) is listed in the BRSQC.

2.1.1.1. **Blending Class A and Class B Aggregates**. Class B aggregate meeting all other requirements shown in Table 1 may be blended with a Class A aggregate to meet requirements for Class A materials, unless otherwise shown on the plans. When blending Class A and Class B aggregates to meet a Class A requirement, ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source, unless otherwise shown on the plans. Blend by volume if the bulk specific gravities of the Class A and Class B aggregates differ by more than 0.300. Coarse aggregate from RAP will be considered as Class B aggregate for blending purposes.

The Engineer may perform tests at any time during production when the Contractor blends Class A and B aggregates to meet a Class A requirement. The Engineer will use the Department's mix design template, when electing to verify conformance, to calculate the percent of Class A aggregate retained on the No. 4 sieve by inputting the bin percentages shown from readouts in the control room at the time of production and stockpile gradations measured at the time of production. The Engineer may determine the gradations based on either washed or dry sieve analysis from samples obtained from individual aggregate cold feed bins or aggregate stockpiles. The Engineer may perform spot checks to verify the percent of Class A aggregate retained on the No. sieve. The Engineer will use the gradations supplied by the Contractor in the mixture design report as an input for the template. A failing spot check will require confirmation with a stockpile gradation determined.

2.1.1.2. **Micro-Deval Abrasion**. The Engineer will perform at least one Micro-Deval abrasion test in accordance with Tex-461-A for each coarse aggregate source used in the mixture design that has a rated source soundness magnesium (RSSM) loss value greater than 15 as listed in the BRSQC. The Engineer will perform testing before the start of production and may perform additional testing anytime during production. The Engineer may obtain the coarse aggregate samples from each coarse aggregate source or may require the Contractor to obtain the samples. The Engineer may waive all Micro-Deval testing based on a satisfactory test history of the same aggregate source.

The Engineer will estimate the magnesium sulfate soundness loss for each coarse aggregate source, when tested, using the following formula:

$Mg_{est.} = (RSSM)(MD_{act.}/RSMD)$

where:

$Mg_{est.}$ = magnesium sulfate soundness loss

RSSM = rated source soundness magnesium

$MD_{act.}$ = actual Micro-Deval percent loss

RSMD = rated source Micro-Deval

When the estimated magnesium sulfate soundness loss is greater than the maximum magnesium sulfate soundness loss specified, the coarse aggregate source will not be allowed for use unless otherwise approved. The Engineer will consult the Materials and Tests Division (MTD), and additional testing may be required before granting approval.

2.1.2. **Intermediate Aggregate**. Aggregates not meeting the definition of coarse or fine aggregate will be defined as intermediate aggregate. Supply intermediate aggregates, when used, that are free from organic impurities.

Supply intermediate aggregate from coarse aggregate sources, when used, that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve, and verify that it meets the requirements in Table 1 for crushed face count (Tex-460-A) and flat and elongated particles (Tex-280-F).

2.1.3. **Fine Aggregate**. Fine aggregates consist of manufactured sands, screenings, and field sands. Fine aggregate stockpiles must meet the fine aggregate properties in accordance with Table 1 and the gradation requirements in accordance with Table 2. Supply fine aggregates that are free from organic impurities. The Engineer may test the fine aggregate in accordance with Tex-408-A to verify the material is free from organic impurities. Unless otherwise shown on the plans, at most 10% of the total aggregate may be field sand or other uncrushed fine aggregate. Use fine aggregate, except field sand, from coarse aggregate sources that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve, and verify that it meets the requirements in Table 1 for crushed face count (Tex-460-A) and flat and elongated particles (Tex-280-F).

Table 1
Aggregate Quality Requirements

Property	Test Method	Requirement
Coarse Aggregate		
SAC	Tex-499-A (AQMP)	As shown on the plans
Deleterious material, %, Max	Tex-217-F, Part I	1.5
Decantation, %, Max	Tex-217-F, Part II	1.5
Micro-Deval abrasion, %	Tex-461-A	Note [1]
Los Angeles abrasion, %, Max	Tex-410-A	40
Magnesium sulfate soundness, 5 cycles, %, Max	Tex-411-A	30
Crushed face count,[2] %, Min	Tex-460-A, Part I	85
Flat and elongated particles @ 5:1, %, Max	Tex-280-F	10
Fine Aggregate		
Linear shrinkage, %, Max	Tex-107-E	3
Sand equivalent %, Min	Tex-203-F	45[3]
Organic impurities	Tex-408-A	Note[4]

1. Used to estimate the magnesium sulfate soundness loss in accordance with Section 341.2.1.1.2. "Micro-Deval Abrasion."
2. Only applies to crushed gravel.
3. The Department may perform Tex-252-F on fine aggregates not meeting this Min requirement. Fine aggregates with a methylene blue value of 10.0 mg/g or less may be used.
4. Optional test.

Table 2
Gradation Requirements for Fine Aggregate

Sieve Size	% Passing by Weight or Volume
3/8"	100
#8	70–100
#200	0–30

2.2. **Mineral Filler**. Mineral filler consists of finely divided mineral matter such as agricultural lime, crusher fines, hydrated lime, or fly ash. Mineral filler is allowed unless otherwise shown on the plans. Use no more than 2% hydrated lime or fly ash, unless otherwise shown on the plans. Use no more than 1% hydrated lime if a substitute binder is used, unless otherwise shown on the plans or allowed. Test all mineral fillers except hydrated lime and fly ash in accordance with Tex-107-E to ensure specification compliance. The plans may require or disallow specific mineral fillers. Provide mineral filler, when used, that:

- is sufficiently dry, free flowing, and free from clumps and foreign matter as determined;
- does not exceed 3% linear shrinkage when tested in accordance with Tex-107-E; and
- meets the gradation requirements in Table 3, unless otherwise shown on the plans.

Table 3
Gradation Requirements for Mineral Filler

Sieve Size	% Passing by Weight or Volume
#8	100
#200	55–100

2.3. **Baghouse Fines**. Fines collected by the baghouse or other dust-collecting equipment may be reintroduced into the mixing drum.

2.4. **Asphalt Binder**. Furnish the type and grade of performance-graded (PG) asphalt specified on the plans that meets the requirements of Item 300, "Asphalts, Oils, and Emulsions."

2.5. **Additives**. Use the type and rate of additive specified when shown on the plans. Use the rate of additive specified in conformance with the manufacturer's recommendation. Additives that facilitate mixing compaction or improve the quality of the mixture are allowed when approved. Provide the Engineer with documentation such as the bill of lading showing the quantity of additives used in the HMAC unless otherwise directed.

2.5.1. **Lime and Liquid Antistripping Agent**. Lime or liquid antistripping agent is required when shown on the plans. When lime or a liquid antistripping agent is used, add in accordance with Item 301, "Asphalt Antistripping Agents." Do not add lime directly into the mixing drum of any plant where lime is removed through the exhaust stream unless the plant has a baghouse or dust collection system that reintroduces the lime into the drum.

2.5.2. **Warm-Mix Asphalt (WMA)**. WMA is defined a HMA that is produced within a target temperature discharge range of 215°F and 275°F using approved WMA additives of process from the MPL.

WMA is allowed for used on all projects and is required when shown on the plans. When WMA is required, the maximum placement or target discharge temperature for WMA will be set at a value at or below 275°F.

Department-approved WMA additives or processes may be used to facilitate mixing and compaction of HMA produced at target discharge temperatures above 275°F; however, such mixtures will not be defined as WMA.

2.6. **Compaction Aid**. Compaction Aid is defined as a Department-approved chemical warm mix additive, denoted as chemical additive on the MPL, that is used to facilitate mixing and compaction of HMA at a discharge temperature greater than 275°F.

Compaction Aid is allowed for use on all projects. Compaction aid is required when shown on the plans or as required in Section 341.4.7.1., "Weather Conditions."

Warm-mix foaming processes, denoted as foaming process on the MPL, may be used to facilitate mixing and compaction of HMA at target discharge temperatures greater than 275°F; however, warm-mix foaming processes are not defined as a compaction aid.

2.7. **Recycled Materials**. Use of RAP is permitted unless otherwise shown on the plans. Do not exceed the maximum allowable percentages of RAP in accordance with Table 4. The allowable percentages in accordance with Table 4 may be decreased or increased when shown on the plans. Determine the asphalt binder content and gradation of the RAP stockpiles for mixture design purposes in accordance with Tex-236-F, Part I. The Engineer may verify the asphalt binder content of the stockpiles at any time during production. Perform other tests on RAP when shown on the plans. Asphalt binder from RAP is designated as recycled asphalt binder. Calculate and ensure that the ratio of the recycled asphalt binder to total binder does not exceed the percentages in accordance with Table 5 during mixture design and HMA production when RAP is used. Use a separate cold feed bin for each stockpile of RAP during HMA production.

Surface, intermediate, and base mixes referenced in Tables 4 and Table 5 are defined as follows, unless otherwise shown on the plans:

- **Surface**. The final HMA lift placed at the top of the pavement structure.
- **Intermediate**. Mixtures placed below an HMA surface mix and less than or equal to 8.0 in. from the riding surface.
- **Base**. Mixtures placed greater than 8.0 in. from the riding surface. Unless otherwise shown on the plans, mixtures used for bond breaker are defined as base mixtures.

All mixes provided by the Contractor are assumed to be surface mixes, unless otherwise specified in the work order.

2.7.1. **RAP**. RAP is salvaged, milled, pulverized, broken, or crushed asphalt pavement. Fractionated RAP is defined as a stockpile that contains RAP material with at least 95.0% passing the 1/2-in. sieve, before burning in the ignition oven, unless otherwise approved. The Engineer may allow the Contractor to use an alternate to the 1/2-in. screen to fractionate the RAP.

Use of Contractor-owned RAP, including HMA plant waste, is permitted unless otherwise shown on the plans. Perform any necessary tests to ensure RAP is appropriate for use. Department-owned RAP stockpiles are available for the Contractor's use when the stockpile locations are shown on the plans. If Department-owned RAP is available for the Contractor's use, the Contractor may use Contractor-owned fractionated RAP and replace it with an equal quantity of Department-owned RAP. Department-owned RAP generated by required work on the Contract is available for the Contractor's use when shown on the plans. Perform any necessary tests to ensure Contractor- or Department-owned RAP is appropriate for use. The Department will not perform any tests or assume any liability for the quality of the Department-owned RAP unless otherwise shown on the plans. The Contractor will retain ownership of RAP generated on the project when shown on the plans.

Do not use Department- or Contractor-owned RAP contaminated with dirt or other objectionable materials. Do not use Department- or Contractor-owned RAP if the decantation value exceeds 5% and the plasticity index is greater than 8. Test the stockpiled RAP for decantation in accordance with Tex-406-A, Part I. Determine the plasticity index in accordance with Tex-106-E if the decantation value exceeds 5%. The decantation and plasticity index requirements do not apply to RAP samples with asphalt removed by extraction or ignition.

Do not intermingle Contractor-owned RAP stockpiles with Department-owned RAP stockpiles. Remove unused Contractor-owned RAP material from the project site upon completion of the project. Return unused Department-owned RAP to the designated stockpile location.

Table 4
Maximum Allowable Amounts of RAP[1]

Max Allowable Fractionated RAP %		
Surface	**Intermediate**	**Base**
20.0	30.0	35.0

1. Must also meet the recycled binder to total binder ratio shown in Table 5.

2.8. **Substitute Binders**. No binder substitution will be allowed when shown on the plans. The Contractor may use a substitute PG binder as shown in Table 5 instead of the PG binder originally specified, if using recycled materials, and if the substitute PG binder and mixture made with the substitute PG binder meet the following.

- The substitute binder meets the specification requirements for the substitute binder grade in accordance with Section 300.2.11., "Performance-Graded Binders."
- The mixture has less than 10.0 mm of rutting on the Hamburg Wheel test (Tex-242-F) after the number of passes required for the originally specified binder. Use of substitute PG binders may only be allowed at the discretion of the Engineer if the Hamburg Wheel test results are between 10.0 mm and 12.5 mm.

Table 5
Allowable Substitute PG Binders and Max Recycled Binder Ratios

Originally Specified PG Binder)	Allowable Substitute PG Binder for Surface Mixes)	Allowable Substitute PG Binder for Intermediate and Base Mixes	Max Ratio of Recycled Binder to Total Binder (%)		
			Surface	Intermediate	Base
76–22	70–22	70–22	15.0	25.0	30.0
70–22[1]	Note[2]	60–22	15.0	25.0	30.0
64–22[1]	Note[2]	Note[2]	15.0	25.0	30.0
76–28	70–28	70–28	15.0	25.0	30.0
70-28	Note[2]	64–28	15.0	25.0	30.0
64–28[1]	Note[2]	Note[2]	15.0	25.0	30.0

1. Combined recycled binder from RAP.
2. No binder substitution is allowed.

3. EQUIPMENT

Provide machinery, tools, and equipment necessary for proper execution of the work.

4. QUALITY CONTROL/QUALITY ASSURANCE

Produce the specified paving mixture. In addition to tests required by the specification, Contractors may perform other QC tests as deemed necessary.

4.1. **Certification**. Personnel certified by the Department-approved hot-mix asphalt certification program must conduct all mixture designs, sampling, and testing in accordance with Table 6. Supply the Engineer with a list of certified personnel and copies of their current certificates before beginning production and when personnel changes are made. Provide a mixture design developed and signed by a Level 2 certified specialist. Provide Level 1A certified specialists at the plant during production operations. Provide Level AGG101 certified specialists for aggregate testing.

Table 6
Test Methods, Test Responsibility, and Minimum Certification Levels

Test Description	Test Method	Contractor	Engineer	Level[1]
Aggregate and Recycled Material Testing				
Sampling	Tex-221-F	✓	✓	1A/AGG101
Dry sieve	Tex-200-F, Part I	✓	✓	1A/AGG101
Washed sieve	Tex-200-F, Part II	✓	✓	1A/AGG101
Deleterious material	Tex-217-F, Part I and Part III	✓	✓	AGG101
Decantation	Tex-217-F, Part II	✓	✓	AGG101
Los Angeles abrasion	Tex-410-A	–	✓	Department
Magnesium sulfate soundness	Tex-411-A	–	✓	Department
Micro-Deval abrasion	Tex-461-A	–	✓	AGG101
Crushed face count	Tex-460-A	✓	✓	AGG101
Flat and elongated particles	Tex-280-F	✓	✓	AGG101
Linear shrinkage	Tex-107-E	✓	✓	AGG101
Sand equivalent	Tex-203-F	✓	✓	AGG101
Methylene blue test	Tex-252-F	–	✓	Department
Bulk-specific gravity	Tex-201-F	✓	✓	AGG101
Organic impurities	Tex-408-A	✓	✓	AGG101
Asphalt Binder Sampling				
Asphalt binder sampling	Tex-500-C, Part II	✓	✓	1A/1B
Mix Design & Verification				
Design and job-mix formula (JMF) changes	Tex-204-F	✓	✓	2
Mixing	Tex-205-F	✓	✓	2
Molding (Superpave gyratory compactor (SGC))	Tex-241-F	✓	✓	1A
Laboratory-molded density	Tex-207-F, Part I and Part VI	✓	✓	1A
Rice gravity	Tex-227-F, Part II	✓	✓	1A
Ignition oven correction factors[2]	Tex-236-F, Part II	✓	✓	1A
Indirect tensile strength	Tex-226-F	✓	✓	1A
Hamburg Wheel test	Tex-242-F	✓	✓	1A
Witnessing mixing of correction factor	Tex-236-F, Part III	–	✓	Department/1A
Boil test	Tex-530-C	✓	✓	1A
Production Testing				
Selecting production random numbers	Tex-225-F, Part I	–	✓	1A
Mixture sampling	Tex-222-F	✓	✓	1A/1B
Molding (SGC)	Tex-241-F	✓	✓	1A
Laboratory-molded density	Tex-207-F, Part I and Part VI	✓	✓	1A
Rice gravity	Tex-227-F, Part II	✓	✓	1A
Gradation & asphalt binder content[2]	Tex-236-F, Part I	✓	✓	1A
Moisture content	Tex-212-F, Part II	✓	✓	1A/AGG101
Hamburg Wheel test	Tex-242-F	✓	✓	1A
Micro-Deval abrasion	Tex-461-A	–	✓	AGG101
Boil test	Tex-530-C	✓	✓	1A
Abson recovery	Tex-211-F	–	✓	Department

1. Levels 1A, 1B, AGG101, and 2 are certification levels provided by the Hot Mix Asphalt Center certification program.
2. Refer to Section 341.4.9.2.3., "Production Testing," for exceptions to using an ignition oven.

4.2. **Reporting, Testing, and Responsibilities**. Use Department-provided templates to record and calculate all test data, including mixture design, production and placement QC and QA, control charts, thermal profiles, segregation density profiles, and longitudinal joint density. Obtain the current version of the templates from the Department's website or from the Engineer. The Engineer and the Contractor will provide any available

test results to the other party when requested. The maximum allowable time for the Contractor and Engineer to exchange test data is as shown in Table 7, unless otherwise approved. The Engineer and the Contractor will immediately report to the other party any test result that requires suspension of production or placement, or a payment adjustment less than 1.000, or that fails to meet the specification requirements. Record and electronically submit all test results and pertinent information on Department-provided templates.

Subsequent sublots placed after test results are available to the Contractor, which require suspension of operations, may be considered unauthorized work. Unauthorized work will be accepted or rejected at the discretion of the Engineer in accordance with Section 5.3., "Conformity with Plans, Specifications, and Special Provisions."

Table 7
Reporting Schedule

Description	Reported By	Reported To	To Be Reported Within
Production Quality Control			
Gradation[1]	Contractor	Engineer	1 working day of completion of the sublot
Asphalt binder content[1]			
Laboratory-molded density[2]			
Moisture content[3]			
Boil test[4]			
Production Quality Assurance			
Gradation[3]	Engineer	Contractor	1 working day of completion of the sublot
Asphalt binder content[3]			
Laboratory-molded density[1]			
Hamburg Wheel test[5]			
Boil test[4]			
Binder tests[5]			

1. These tests are required on every sublot.
2. Optional test. When performed on split samples, report the results as soon as they become available.
3. To be performed at the frequency shown in Table 13 or as shown on the plans.
4. When shown on the plans.
5. To be reported as soon as the results become available.

4.3. **Mixture Design**.

4.3.1. **Design Requirements**. Use the dense-graded design procedure provided in Tex-204-F, unless otherwise shown on the plans. Design the mixture to meet the requirements listed in Tables 1, 2, 3, 4, 5, 8, 9, and 10.

Design the mixture using an SGC, and 50 gyrations as the design number of gyrations (Ndesign). Use a target laboratory-molded density of 96.0% to design the mixture; however, adjustments can be made to the Ndesign value as noted in Table 9. The Ndesign level may be reduced to at least 35 gyrations at the Contractor's discretion.

Use Department-approved laboratory on the MPL to perform the Hamburg Wheel test and provide results with the mixture design or provide the laboratory mixture and request that the Department perform the Hamburg Wheel test. Upon receiving the sample from the Contractor, the Engineer will be allowed 10 working days to provide the Contractor with Hamburg Wheel test results on the laboratory mixture design.

The Engineer will provide the mixture design when shown on the plans. The Contractor may submit a new mixture design anytime during the contract. The Engineer will verify and approve all mixture designs (JMF1) before the Contractor can begin production.

Provide the Engineer with a mixture design report using the Department-provided template. Include the following items in the report:

- the combined aggregate gradation, source, specific gravity, and percent of each material used;
- the binder source and optimum design asphalt content;
- asphalt binder content and aggregate gradation of RAP stockpiles;
- the Ndesign level used on the SGC);

- results of all applicable tests;
- the mixing and molding temperatures;
- the signature of the Level 2 person or persons that performed the design;
- the date the mixture design was performed; and
- a unique identification number for the mixture design.

Table 8
Master Gradation Limits (% Passing by Weight or Volume) and Void in Mineral Aggregate (VMA) Requirements

Sieve Size	DG-B Fine Base	DG-C Coarse Surface	DG-D Fine Surface	DG-F Fine Mixture
2"	–	–	–	–
1-1/2"	100.0[1]	–	–	–
1"	98.0–100.0	100.0[1]	–	–
3/4"	84.0–98.0	95.0–100.0	100.0[1]	–
1/2"	–	–	98.0–100.0	100.0[1]
3/8"	60.0–80.0	70.0–85.0	85.0–100.0	98.0–100.0
#4	40.0–60.0	43.0–63.0	50.0–70.0	70.0–90.0
#8	29.0–43.0	32.0–44.0	35.0–46.0	38.0–48.0
#30	13.0–28.0	14.0–28.0	15.0–29.0	12.0–27.0
#50	6.0–20.0	7.0–21.0	7.0–20.0	6.0–19.0
#200	2.0–7.0	2.0–7.0	2.0–7.0	2.0–7.0
Design VMA, % Min				
–	13.0	14.0	15.0	16.0
Production (Plant-Produced) VMA, % Min				
–	12.5	13.5	14.5	15.5

1. Defined as Max sieve size. No tolerance allowed

Table 9
Laboratory Mixture Design Properties

Mixture Property	Test Method	Requirement
Target laboratory-molded density, %	Tex-207-F	96.0
Design gyrations (Ndesign)	Tex-241-F	50[1]
Indirect tensile strength (dry), psi	Tex-226-F	85–200[2]
Boil test[3]	Tex-530-C	–

1. Adjust within a range of 35–100 gyrations when shown on the plans in accordance with the specification, or when mutually agreed between the Engineer and Contractor.
2. The Engineer may allow the indirect tensile test strength to exceed 200 psi if the corresponding Hamburg Wheel rut depth is >2.5 mm and <12.5 mm.
3. When shown on the plans. Used to establish baseline for comparison to production results.

Table 10
Hamburg Wheel Test Requirements

High-Temperature Binder Grade	Test Method	Min # of Passes @ 12.5 mm[1] Rut Depth, Tested @ 50°C
PG 64 or lower	Tex-242-F	10,000[2]
PG 70		15,000[3]
PG 76 or higher		20,000

1. The Hamburg Wheel test will have a Min rut depth of 2.5 mm.
2. May be decreased to at least 5,000 passes when shown on the plans.
3. May be decreased to at least 10,000 passes when shown on the plans.

4.3.2. **Job-Mix Formula Approval**. The JMF is the combined aggregate gradation, Ndesign level, and target asphalt percentage used to establish target values for hot-mix production. JMF1 is the original laboratory mixture design used to produce the trial batch. When WMA is used, JMF1 may be designed and submitted to the Engineer without including the WMA additive, foaming process, or compaction aid. When WMA or a compaction aid is used, document the additive or process used and recommended rate in the JMF1 submittal. The Engineer may accept an existing mixture design previously used on a Department project and may waive the trial batch to verify JMF1. The Department may require the Contractor to reimburse the Department for verification tests if more than two trial batches per design are required.

4.3.3. **JMF Adjustments**. If JMF adjustments are necessary to achieve the specified requirements, the adjusted JMF must:

- be provided to the Engineer in writing before the start of a new lot,
- be numbered in sequence to the previous JMF,
- meet the mixture requirements in Table 4 and Table 5,
- meet the master gradation limits shown in Table 8, and
- be within the operational tolerances of the current JMF listed in Table 11.

The Engineer may adjust the asphalt binder content to maintain desirable laboratory density near the optimum value while achieving other mix requirements.

Table 11
Operational Tolerances

Description	Test Method	Allowable Difference Between JMF2 and JMF1 Target[1]	Allowable Difference Between Current JMF and JMF2[2]	Allowable Difference Between Contractor and Engineer[3]
Individual % retained on #8 sieve and larger	Tex-200-F or Tex-236-F	Must be within master gradation limits in Table 8	±5.0[4]	±5.0
Individual % retained on sieves smaller than #8 and larger than #200			±3.0[4]	±3.0
% passing the #200 sieve			±2.0[4]	±1.6
Asphalt binder content, %	Tex-236-F	±0.5	±0.3[2]	±0.3
Laboratory-molded density, %	Tex-207-F	±1.0	±1.0	±1.0
In-place air voids, %		–	–	±1.0
Laboratory-molded bulk specific gravity		–		±0.020
VMA, %, Min	Tex-204-F	Note[5]	Note[5]	–
Theoretical Max specific (Rice) gravity	Tex-227-F	–	–	±0.020

1. JMF1 is the approved laboratory mixture design used for producing the trial batch. JMF2 is the approved mixture design developed from the trial batch used to produce Lot 1.
2. Current JMF is JMF3 or higher. JMF3 is the approved mixture design used to produce Lot 2.
3. Contractor may request referee testing when values exceed these tolerances.
4. When within these tolerances, mixture production gradations may fall outside the master gradation limits; however, the % passing the #200 will be considered out of tolerance when outside the master gradation limits.
5. Verify that Table 8 requirements are met for VMA.

4.4. **Production Operations**. Perform a new trial batch when the plant or plant location is changed. All source changes for asphalt will require a passing Hamburg Wheel test result from a laboratory listed on the MPL. The Contractor may proceed at their own risk with Lot 1 production without the results from the Hamburg wheel test on the trial batch. All aggregate source changes will require a new laboratory mixture design and trial batch. Take corrective action and receive approval to proceed after any production suspension for noncompliance with the specification. Submit a new mix design and perform a new trial batch when the asphalt binder content of any RAP stockpile used in the mix is more than 0.5% higher than the value shown in the mixture design report.

4.4.1. **Storage and Heating of Materials**. Do not heat the asphalt binder above the temperatures specified in Item 300 or outside the manufacturer's recommended values. Provide the Engineer with daily records of asphalt binder and hot-mix asphalt discharge temperatures (in legible and discernible increments) in accordance with Item 320, "Equipment for Asphalt concrete Pavement," unless otherwise directed. Do not store mixture for a period long enough to affect the quality of the mixture, nor in any case longer than 12 hr. unless otherwise approved.

4.4.2. **Mixing and Discharge of Materials**. Notify the Engineer of the target discharge temperature and produce the mixture within 25°F of the target. Monitor the temperature of the material in the truck before shipping to

ensure that it does not exceed the maximum production temperatures listed in Table 12. The Department will not pay for any mixture produced above the maximum production temperatures listed in Table 12.

Table 12
Max Production Temperature

High-Temperature Binder Grade[1]	Max Production Temperature
PG 64	325°F[2]
PG 70	335°F[2]
PG 76	345°F[2]

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.
2. The Max production temperature of WMA is 275°F.

Produce WMA within the target discharge temperature range of 215–275°F when WMA is required. Take corrective action anytime the discharge temperature of the WMA exceeds the target discharge range. The Engineer may suspend production operations if the Contractor's corrective action is not successful at controlling the production temperature within the target discharge range. Note that when WMA is produced, it may be necessary to adjust burners to ensure complete combustion such that no burner fuel residue remains in the mixture.

Control the mixing time and temperature so that substantially all moisture is removed from the mixture before discharging from the plant. The Engineer may determine the moisture content, if requested, by oven-drying in accordance with Tex-212-F, Part II, and verify that the mixture contains no more than 0.2% of moisture by weight. Obtain the sample immediately after discharging the mixture into the truck and perform the test promptly.

4.5. **Hauling Operations**. Clean all truck beds before use to ensure that mixture is not contaminated. Use a release agent listed on the MPL to coat the inside bed of the truck when necessary. Do not use diesel or any release agent not listed on the MPL.

Use equipment for hauling as defined in Section 341.4.7.3.3., "Hauling Equipment." Use other hauling equipment only when allowed.

4.6. **Production Acceptance**.

4.6.1. **Production Lot**. Each day of production is defined as a production lot. Lots will be sequentially numbered and correspond to each new day of production. Note that lots are not subdivided into sublots for this Specification.

4.6.2. **Production Sampling**.

4.6.2.1. **Mixture Sampling**. The Engineer may obtain mixture samples in accordance with Tex-222-F at any time during production.

4.6.2.2. **Asphalt Binder Sampling**. The Engineer may obtain or require the Contractor to obtain 1 qt. samples of the asphalt binder at any time during production from a port located immediately upstream from the mixing drum or pug mill and upstream from the introduction of any additives in accordance with Tex-500-C, Part II. The Contractor must notify the Engineer when the sampling will occur. The Engineer may test any of the asphalt binder samples to verify compliance with Item 300.

4.6.3. **Production Testing**. The Engineer will test at the frequency listed in the Department's *Guide Schedule of Sampling and Testing* and this Specification. The Engineer may suspend production if production tests do not meet specifications or are not within operational tolerances listed in Table 11. Take immediate corrective action if the Engineer's laboratory-molded density on any sample is less than 95.0% or greater than 98.0%, to bring the mixture within these tolerances. The Engineer may suspend operations if the Contractor's corrective actions do not produce acceptable results. The Engineer will allow production to resume when the proposed corrective action is likely to yield acceptable results.

The Engineer may use alternate methods for determining the asphalt binder content and aggregate gradation if the aggregate mineralogy is such that Tex-236-F does not yield reliable results. Use the applicable test procedure if an alternate test method is selected.

Table 13
Production Testing

Description	Test Method	Min Contractor Testing Frequency	Min Engineer Testing Frequency
Individual % retained for #8 sieve and larger	Tex-200-F or Tex-236-F	1 per sublot	1 per 12 sublots[1]
Individual % retained for sieves smaller than #8 and larger than #200			
% passing the #200 sieve			
Laboratory-molded density	Tex-207-F	–	1 per sublot[1]
Laboratory-molded bulk specific gravity		–	–
VMA	Tex-204-F	–	–
Moisture content	Tex-212-F, Part II	When directed	1 per project
Theoretical Max specific (Rice) gravity	Tex-227-F	–	1 per sublot[1]
Asphalt binder content	Tex-236-F	1 per sublot	1 per lot[1]
Hamburg Wheel test	Tex-242-F	–	1 per project
Asphalt binder sampling and testing[2,3]	Tex-500-C, Part II	–	
Boil test[4]	Tex-530-C	1 per lot	

1. For production defined in Section 341.4.9.4., "Exempt Production," the Engineer will perform one test per day if 100 ton or more is produced. For exempt production, no testing is required when < 100 ton is produced.
2. Testing performed by MTD or designated laboratory.
3. Sampling performed by the Contractor. The Engineer will witness sampling and retain the samples for 1 yr.
4. When shown on the plans.

4.6.3.1. **Voids in Mineral Aggregates (VMA)**. The Engineer may determine the VMA for any production lot. Take immediate corrective action if the VMA value for any lot is less than the minimum VMA requirement for production listed in Table 8. Suspend production and shipment of the mixture if the Engineer's VMA results on two consecutive sublots are below the minimum VMA requirement for production shown in Table 8.

4.6.3.2. **Hamburg Wheel Test**. The Engineer may perform a Hamburg Wheel test at any time during production. Suspend production until further Hamburg Wheel tests meet the specified values when the production samples fail the Hamburg Wheel test criteria in Table 10.

4.6.4. **Individual Loads of Hot-Mix**. The Engineer can reject individual truckloads of hot-mix. When a load of hot-mix is rejected for reasons other than temperature, contamination, or excessive uncoated particles, the Contractor may request that the rejected load be tested. Make this request within 4 hr. of rejection. The Engineer will sample and test the mixture. If test results are within the operational tolerances shown in Table 11, payment will be made for the load. If test results are not within operational tolerances, no payment will be made for the load.

5. MEASUREMENT

Hot mix will be measured by the ton of composite hot-mix, which includes asphalt, aggregate, and additives. Measure the weight on scales in accordance with Item 520, "Weighing and Measuring Equipment."

6. PAYMENT

The materials furnished in accordance with this Item and measured as provided under "Measurement," will be paid for at the unit price bid for the types shown below.

6.1. **Hot Mix (Site Delivery)**. Payment will be made for the mixture type, SAC, and binder specified. This price is full compensation for furnishing materials, assistance provided in sampling, loading, hauling, delivery of materials, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals. If bid codes in the estimate indicate location numbers, each location will be shown on the plans.

6.2. **Hot Mix (Vehicle Pickup)**. Payment will be made for the mixture type, SAC, and binder specified. This price is full compensation for furnishing materials, assistance provided in sampling, loading, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals.

Trial batches will not be paid for unless approved by the Department.

Special Specification 8017
Superpave Mixtures (Materials Only)

1. DESCRIPTION

Provide a hot-mix asphalt (HMA) pavement composed of a superpave (SP) mixture of aggregate and asphalt binder mixed hot in a mixing plant.

2. MATERIALS

Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and Specifications.

Notify the Engineer of all material sources and before changing any material source or formulation. The Engineer will verify that the specification requirements are met when the Contractor makes a source or formulation change and may require a new laboratory mixture design, trial batch, or both. The Engineer may sample and test project materials at any time during the project to verify specification compliance in accordance with Item 6, "Control of Materials."

2.1. **Aggregate**. Furnish aggregates from sources that conform to the requirements shown in Table 1 and as specified in this Section. Aggregate requirements in this Section, including those shown in Table 1, may be modified or eliminated when shown on the plans. Additional aggregate requirements may be specified when shown on the plans. Provide aggregate stockpiles that meet the definitions in this Section for coarse, intermediate, or fine aggregate. Aggregate from reclaimed asphalt pavement (RAP) is not required to meet Table 1 requirements unless otherwise shown on the plans. Supply aggregates that meet the definitions in Tex-100-E for crushed gravel or crushed stone. The Engineer will designate the plant or the quarry as the sampling location. Provide samples from materials produced for the project. The Engineer will establish the Surface Aggregate Classification (SAC) and perform Los Angeles abrasion, magnesium sulfate soundness, and Micro-Deval tests. Perform all other aggregate quality tests listed in Table 1. Document all test results on the mixture design report. The Engineer may perform tests on independent or split samples to verify Contractor test results. Stockpile aggregates for each source and type separately. Determine aggregate gradations for mixture design and production testing based on the washed sieve analysis given in Tex-200-F, Part II.

2.1.1. **Coarse Aggregate**. Coarse aggregate stockpiles must have no more than 20% material passing the No. 8 sieve. Aggregates from sources listed in the Department's *Bituminous Rated Source Quality Catalog* (BRSQC) are preapproved for use. Use only the rated values for hot-mix listed in the BRSQC. Rated values for surface treatment (ST) do not apply to coarse aggregate sources used in hot-mix asphalt.

For sources not listed on the Department's BRSQC:

- build an individual stockpile for each material;
- request the Department test the stockpile for specification compliance; and
- once approved, do not add material to the stockpile unless otherwise approved.

Provide aggregate from non-listed sources only when tested and approved before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources.

Provide coarse aggregate with at least the minimum SAC shown on the plans. SAC requirements only apply to aggregates used on the surface of travel lanes. SAC requirements apply to aggregates used on surfaces

other than travel lanes when shown on the plans. The SAC for sources on the Department's *Aggregate Quality Monitoring Program* (AQMP) (Tex-499-A) is listed in the BRSQC.

2.1.1.1. **Blending Class A and Class B Aggregates**. Class B aggregate meeting all other requirements in Table 1 may be blended with a Class A aggregate to meet requirements for Class A materials, unless otherwise shown on the plans. Ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source when blending Class A and B aggregates to meet a Class A requirement unless otherwise shown on the plans. Blend by volume if the bulk specific gravities of the Class A and B aggregates differ by more than 0.300. Coarse aggregate from RAP and recycled asphalt shingles (RAS) will be considered as Class B aggregate for blending purposes.

The Engineer may perform tests at any time during production, when the Contractor blends Class A and B aggregates to meet a Class A requirement, to ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source. The Engineer will use the Department's mix design template, when electing to verify conformance, to calculate the percent of Class A aggregate retained on the No. 4 sieve by inputting the bin percentages shown from readouts in the control room at the time of production and stockpile gradations measured at the time of production. The Engineer may determine the gradations based on either washed or dry sieve analysis from samples obtained from individual aggregate cold feed bins or aggregate stockpiles. The Engineer may perform spot checks using the gradations supplied by the Contractor on the mixture design report as an input for the template; however, a failing spot check will require confirmation with a stockpile gradation determined by the Engineer.

2.1.1.2. **Micro-Deval Abrasion**. The Engineer must perform a minimum of one Micro-Deval abrasion test in accordance with Tex-461-A for each coarse aggregate source used in the mixture design that has a rated source soundness magnesium (RSSM) loss value greater than 15 as listed in the BRSQC. The Engineer will perform testing before the start of production and may perform additional testing at any time during production. The Engineer may obtain the coarse aggregate samples from each coarse aggregate source or may require the Contractor to obtain the samples. The Engineer may waive all Micro-Deval testing based on a satisfactory test history of the same aggregate source.

The Engineer will estimate the magnesium sulfate soundness loss for each coarse aggregate source, when tested, using the following formula.

$$Mg_{est.} = (RSSM)(MD_{act.}/RSMD)$$

where:
$Mg_{est.}$ = magnesium sulfate soundness loss
$MD_{act.}$ = actual Micro-Deval percent loss
RSMD = Rated Source Micro-Deval

When the estimated magnesium sulfate soundness loss is greater than the maximum magnesium sulfate soundness loss specified, the coarse aggregate source will not be allowed for use unless otherwise approved. The Engineer must consult the Soils and Aggregates Section of the Materials and Tests Division, and additional testing may be required before granting approval.

2.1.2. **Intermediate Aggregate**. Aggregates not meeting the definition of coarse or fine aggregate will be defined as intermediate aggregate. Supply intermediate aggregates, when used that are free from organic impurities. The Engineer may test the intermediate aggregate in accordance with Tex-408-A to verify the material is free from organic impurities. Supply intermediate aggregate from coarse aggregate sources, when used that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve, and verify that it meets the requirements in Table 1 for crushed face count (Tex-460-A) and flat and elongated particles (Tex-280-F).

2.1.3. **Fine Aggregate**. Fine aggregates consist of manufactured sands, screenings, and field sands. Fine aggregate stockpiles must meet the gradation requirements in Table 2. Supply fine aggregates that are free from organic impurities. The Engineer may test the fine aggregate in accordance with Tex-408-A to verify the material is free from organic impurities. Unless otherwise shown on the plans, up to 10% of the total aggregate may be field sand or other uncrushed fine aggregate. Use fine aggregate, with the exception of field sand, from coarse aggregate sources that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve and verify that it meets the requirements in Table 1 for crushed face count (Tex-460-A) and flat and elongated particles (Tex-280-F).

Table 1
Aggregate Quality Requirements

Property	Test Method	Requirement
Coarse Aggregate		
SAC	Tex-499-A (AQMP)	As shown on the plans
Deleterious material, %, Max	Tex-217-F, Part I	1.0
Decantation, %, Max	Tex-217-F, Part II	1.5
Micro-Deval abrasion, %	Tex-461-A	Note[1]
Los Angeles abrasion, %, Max	Tex-410-A	35[2]
Magnesium sulfate soundness, 5 cycles, %, Max	Tex-411-A	25[3]
Crushed face count,[4] %, Min	Tex-460-A, Part I	85
Flat and elongated particles @ 5:1, %, Max	Tex-280-F	10
Fine Aggregate		
Linear shrinkage, %, Max	Tex-107-E	3
Sand equivalent, %, Min	Tex-203-F	45

1. Used to estimate the magnesium sulfate soundness loss in accordance with Section 8017.2.1.1.2., "Micro-Deval Abrasion."
2. For base mixtures defined in Section 8017.2.6., "Recycled Materials," the Los Angeles abrasion may be increased to a maximum of 40%.
3. For base mixtures defined in Section 8017.2.6., "Recycled Materials," the magnesium sulfate soundness, five cycles, may be increased to a maximum of 30%.
4. Only applies to crushed gravel.

Table 2
Gradation Requirements for Fine Aggregate

Sieve Size	% Passing by Weight or Volume
3/8"	100
#8	70–100
#200	0–30

2.2. **Mineral Filler**. Mineral filler consists of finely divided mineral matter such as agricultural lime, crusher fines, hydrated lime, or fly ash. Mineral filler is allowed unless otherwise shown on the plans. Use no more than 2% hydrated lime or fly ash unless otherwise shown on the plans. Use no more than 1% hydrated lime if a substitute binder is used unless otherwise shown on the plans or allowed. Test all mineral fillers except hydrated lime and fly ash in accordance with Tex-107-E to ensure Specification compliance. The plans may require or disallow specific mineral fillers. Provide mineral filler, when used, that:

- is sufficiently dry, free-flowing, and free from clumps and foreign matter as determined;
- does not exceed 3% linear shrinkage when tested in accordance with Tex-107-E; and
- meets the gradation requirements in Table 3, unless otherwise shown on the plans.

Table 3
Gradation Requirements for Mineral Filler

Sieve Size	% Passing by Weight or Volume
#8	100
#200	55–100

2.3. **Baghouse Fines**. Fines collected by the baghouse or other dust-collecting equipment may be reintroduced into the mixing drum.

2.4. **Asphalt Binder**. Furnish the type and grade of performance-graded (PG) asphalt specified on the plans.

2.5. **Additives**. Use the type and rate of additive specified when shown on the plans. Additives that facilitate mixing, compaction, or improve the quality of the mixture are allowed when approved. Provide the Engineer with documentation such as the bill of lading showing the quantity of additives used in the project unless otherwise directed.

2.5.1. **Lime and Liquid Antistripping Agent**. When lime or a liquid antistripping agent is used, add in accordance with Item 301, "Asphalt Antistripping Agents." Do not add lime directly into the mixing drum of any plant where lime is removed through the exhaust stream unless the plant has a baghouse or dust collection system that reintroduces the lime into the drum.

2.5.2. **Compaction Aid**. Compaction Aid is defined as a chemical warm mix additive that is used to produce an asphalt mixture at a discharge temperature greater than 275°F.

Compaction Aid is allowed for use on all projects and is required when shown on the plans.

2.6. **Recycled Materials**. Use of RAP and RAS is permitted unless otherwise shown on the plans. Use of RAS is restricted to only intermediate and base mixes unless otherwise shown on the plans. Do not exceed the maximum allowable percentages of RAP and RAS shown in Table 4. The allowable percentages shown in Table 4 may be decreased or increased when shown on the plans. Determine the asphalt binder content and gradation of the RAP and RAS stockpiles for mixture design purposes in accordance with Tex-236-F, Part I. The Engineer may verify the asphalt binder content of the stockpiles at any time during production. Perform other tests on RAP and RAS when shown on the plans. Asphalt binder from RAP and RAS is designated as recycled asphalt binder. Calculate and ensure that the ratio of the recycled asphalt binder to total binder does not exceed the percentages shown in Table 5 during mixture design and HMA production when RAP or RAS is used. Use a separate cold feed bin for each stockpile of RAP and RAS during HMA production.

Surface, intermediate, and base mixes referenced in Tables 4 and 5 are defined as follows.

- **Surface**. The final HMA lift placed at the top of the pavement structure or placed directly below mixtures produced in accordance with Items 316, 342, 347, or 348.
- **Intermediate**. Mixtures placed below an HMA surface mix and less than or equal to 8.0 in. from the riding surface.
- **Base**. Mixtures placed greater than 8.0 in. from the riding surface. Unless otherwise shown on the plans, mixtures used for bond breaker are defined as base mixtures.

2.6.1. **RAP**. RAP is salvaged, milled, pulverized, broken, or crushed asphalt pavement. Fractionated RAP is defined as a stockpile that contains RAP material with a minimum of 95.0% passing the 3/8-in. or 1/2-in. sieve, before burning in the ignition oven, unless otherwise approved. The Engineer may allow the Contractor to use an alternate to the 3/8-in. or 1/2-in. screen to fractionate the RAP.

Use of Contractor-owned RAP including HMA plant waste is permitted unless otherwise shown on the plans. Department-owned RAP stockpiles are available for the Contractor's use when the stockpile locations are shown on the plans. If Department-owned RAP is available for the Contractor's use, the Contractor may use Contractor-owned fractionated RAP and replace it with an equal quantity of Department-owned RAP. Department-owned RAP generated through required work on the Contract is available for the Contractor's use when shown on the plans. Perform any necessary tests to ensure Contractor- or Department-owned RAP is appropriate for use. The Department will not perform any tests or assume any liability for the quality of the Department-owned RAP unless otherwise shown on the plans. The Contractor will retain ownership of RAP generated on the project when shown on the plans.

Do not use Department- or Contractor-owned RAP contaminated with dirt or other objectionable materials. Do not use Department- or Contractor-owned RAP if the decantation value exceeds 5% and the plasticity index is greater than eight. Test the stockpiled RAP for decantation in accordance with Tex-406-A, Part I.

Determine the plasticity index in accordance with Tex-106-E if the decantation value exceeds 5%. The decantation and plasticity index requirements do not apply to RAP samples with asphalt removed by extraction or ignition.

Do not intermingle Contractor-owned RAP stockpiles with Department-owned RAP stockpiles. Remove unused Contractor-owned RAP material from the project site upon completion of the project. Return unused Department-owned RAP to the designated stockpile location.

Table 4
Maximum Allowable Amounts of RAP[1]

Maximum Allowable Fractionated RAP (%)		
Surface	**Intermediate**	**Base**
20.0	30.0	35.0

1. Must also meet the recycled binder to total binder ratio shown in Table 5.

2.6.2. **RAS**. Use of post-manufactured RAS or post-consumer RAS (tear-offs) is not permitted in surface mixtures unless otherwise shown on the plans. RAS may be used in intermediate and base mixtures unless otherwise shown on the plans. Up to 3% RAS may be used separately or as a replacement for fractionated RAP in accordance with Table 4 and Table 5. RAS is defined as processed asphalt shingle material from manufacturing of asphalt roofing shingles or from re-roofing residential structures. Post-manufactured RAS is processed manufacturer's shingle scrap by-product. Post-consumer RAS is processed shingle scrap removed from residential structures. Comply with all regulatory requirements stipulated for RAS by the TCEQ. RAS may be used separately or in conjunction with RAP.

Process the RAS by ambient grinding or granulating such that 100% of the particles pass the 3/8 in. sieve when tested in accordance with Tex-200-F, Part I. Perform a sieve analysis on processed RAS material before extraction (or ignition) of the asphalt binder.

Add sand meeting the requirements of Table 1 and Table 2 or fine RAP to RAS stockpiles if needed to keep the processed material workable. Any stockpile that contains RAS will be considered a RAS stockpile and be limited to no more than 3.0% of the HMA mixture in accordance with Table 4.

Certify compliance of the RAS with DMS-11000, "Evaluating and Using Nonhazardous Recyclable Materials Guidelines." Treat RAS as an established nonhazardous recyclable material if it has not come into contact with any hazardous materials. Use RAS from shingle sources on the Department's MPL. Remove substantially all materials before use that are not part of the shingle, such as wood, paper, metal, plastic, and felt paper. Determine the deleterious content of RAS material for mixture design purposes in accordance with Tex-217-F, Part III. Do not use RAS if deleterious materials are more than 0.5% of the stockpiled RAS unless otherwise approved. Submit a sample for approval before submitting the mixture design. The Department will perform the testing for deleterious material of RAS to determine Specification compliance.

2.7. **Substitute Binders**. Unless otherwise shown on the plans, the Contractor may use a substitute PG binder listed in Table 5 instead of the PG binder originally specified if using recycled materials, and if the substitute PG binder and mixture made with the substitute PG binder meet the following.

- The substitute binder meets the Specification requirements for the substitute binder grade in accordance with Section 300.2.10., "Performance-Graded Binders."
- The mixture has less than 10.0 mm of rutting on the Hamburg Wheel test (Tex-242-F) after the number of passes required for the originally specified binder. Use of substitute PG binders may only be allowed at the discretion of the Engineer if the Hamburg Wheel test results are between 10.0 mm and 12.5 mm.

Table 5
Allowable Substitute PG Binders and Maximum Recycled Binder Ratios

Originally Specified PG Binder	Allowable Substitute PG Binder for Surface Mixes	Allowable Substitute PG Binder for Intermediate and Base Mixes	Maximum Ratio of Recycled Binder[1] to Total Binder (%)		
			Surface	Intermediate	Base
76-22[4,5]	70-22	70-22	15.0	25.0	30.0
70-22[2,5]	N/A	64-22	15.0	25.0	30.0
64-22[2,3]	N/A	N/A	15.0	25.0	30.0
76-28[4,5]	70-28	70-28	15.0	25.0	30.0
70-28[2,5]	N/A	64-28	15.0	25.0	30.0
64-28[2,3]	N/A	N/A	15.0	25.0	30.0

1. Combined recycled binder from RAP and RAS. RAS is not permitted in surface mixtures unless otherwise shown on the plans.
2. Binder substitution is not allowed for surface mixtures.
3. Binder substitution is not allowed for intermediate and base mixtures.
4. Use no more than 15.0% recycled binder in surface mixtures when using this originally specified PG binder.
5. Use no more than 25.0% recycled binder when using this originally specified PG binder for intermediate mixtures. Use no more than 30.0% recycled binder when using this originally specified PG binder for base mixtures.

3. EQUIPMENT

Provide required or necessary equipment in accordance with Item 320, “Equipment for Asphalt Concrete Pavement.”

4. CONSTRUCTION

Produce the specified paving mixture. In addition to tests required by the Specification, Contractors may perform other QC tests as deemed necessary.

4.1. **Certification**. Personnel certified by the Department-approved hot-mix asphalt certification program must conduct all mixture designs, sampling, and testing in accordance with Table 6. Supply the Engineer with a list of certified personnel and copies of their current certificates before beginning production and when personnel changes are made. Provide a mixture design developed and signed by a Level 2 certified specialist. Provide Level 1A certified specialists at the plant during production operations.

Table 6
Test Methods, Test Responsibility, and Minimum Certification Levels

Test Description	Test Method	Contractor	Engineer	Level[1]
1. Aggregate and Recycled Material Testing				
Sampling	Tex-221-F	✓	✓	1A/AGG101
Dry sieve	Tex-200-F, Part I	✓	✓	1A/AGG101
Washed sieve	Tex-200-F, Part II	✓	✓	1A/AGG101
Deleterious material	Tex-217-F, Parts I & III	✓	✓	AGG101
Decantation	Tex-217-F, Part II	✓	✓	AGG101
Los Angeles abrasion	Tex-410-A	–	✓	TxDOT
Magnesium sulfate soundness	Tex-411-A	–	✓	TxDOT
Micro-Deval abrasion	Tex-461-A	–	✓	AGG101
Crushed face count	Tex-460-A	✓	✓	AGG101
Flat and elongated particles	Tex-280-F	✓	✓	AGG101
Linear shrinkage	Tex-107-E	✓	✓	AGG101
Sand equivalent	Tex-203-F	✓	✓	AGG101
Bulk specific gravity	Tex-201-F	✓	✓	AGG101
Unit weight	Tex-404-A	✓	✓	AGG101
Organic impurities	Tex-408-A	✓	✓	AGG101
2. Asphalt Binder & Tack Coat Sampling				
Asphalt binder sampling	Tex-500-C, Part II	✓	✓	1A/1B
Tack coat sampling	Tex-500-C, Part III	✓	✓	1A/1B
3. Mix Design & Verification				
Design and JMF changes	Tex-204-F	✓	✓	2
Mixing	Tex-205-F	✓	✓	2
Molding (SGC)	Tex-241-F	✓	✓	1A
Laboratory-molded density	Tex-207-F, Parts I & VI	✓	✓	1A
Rice gravity	Tex-227-F, Part II	✓	✓	1A
Ignition oven correction factors[2]	Tex-236-F, Part II	✓	✓	2
Indirect tensile strength	Tex-226-F	✓	✓	1A
Hamburg Wheel test	Tex-242-F	✓	✓	1A
Boil test	Tex-530-C	✓	✓	1A
4. Production Testing				
Selecting production random numbers	Tex-225-F, Part I	–	✓	1A
Mixture sampling	Tex-222-F	✓	✓	1A/1B
Molding (SGC)	Tex-241-F	✓	✓	1A
Laboratory-molded density	Tex-207-F, Parts I & VI	✓	✓	1A
Rice gravity	Tex-227-F, Part II	✓	✓	1A
Gradation & asphalt binder content[2]	Tex-236-F, Part I	✓	✓	1A
Control charts	Tex-233-F	✓	✓	1A
Moisture content	Tex-212-F, Part II	✓	✓	1A/AGG101
Hamburg Wheel test	Tex-242-F	✓	✓	1A
Micro-Deval abrasion	Tex-461-A	–	✓	AGG101
Boil test	Tex-530-C	✓	✓	1A
Abson recovery	Tex-211-F	–	✓	TxDOT
5. Placement Testing				
Selecting placement random numbers	Tex-225-F, Part II	–	✓	1B
Trimming roadway cores	Tex-251-F, Parts I & II	✓	✓	1A/1B
In-place air voids	Tex-207-F, Parts I & VI	✓	✓	1A
In-place density (nuclear method)	Tex-207-F, Part III	✓	–	1B
Establish rolling pattern	Tex-207-F, Part IV	✓	–	1B
Control charts	Tex-233-F	✓	✓	1A
Ride quality measurement	Tex-1001-S	✓	✓	Note 3
Segregation (density profile)	Tex-207-F, Part V	✓	✓	1B
Longitudinal joint density	Tex-207-F, Part VII	✓	✓	1B
Thermal profile	Tex-244-F	✓	✓	1B
Shear Bond Strength Test	Tex-249-F	–	✓	TxDOT

1. Level 1A, 1B, AGG101, and 2 are certification levels provided by the Hot Mix Asphalt Center certification program.
2. Refer to Section 344.4.9.2.3., "Production Testing," for exceptions to using an ignition oven.
3. Profiler and operator are required to be certified at the Texas A&M Transportation Institute facility when Surface Test Type B is specified.

4.2. **Reporting and Responsibilities**. Use Department-provided templates to record and calculate all test data, pertaining to the mixture design. Obtain the current version of the templates at http://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/forms/site-manager.html or from the Engineer. The maximum allowable time for the Contractor and Engineer to exchange test data is as given in Table 7 unless otherwise approved. The Engineer will immediately report to the Contractor any test result that requires suspension of production or placement or that fails to meet the Specification requirements.

Table 7
Reporting Schedule

Description	Reported By	Reported To	To Be Reported Within
Production Quality Control			
Gradation[1]	Contractor	Engineer	1 working day of completion of the sublot
Asphalt binder content[1]			
Laboratory-molded density[2]			
Moisture content[3]			
Boil test[3]			
Production Quality Assurance			
Gradation[3]	Engineer	Contractor	1 working day of completion of the sublot
Asphalt binder content[3]			
Laboratory-molded density[1]			
Hamburg Wheel test[4]			
Boil test[3]			
Binder tests[4]			
Placement Quality Control			
In-place air voids[2]	Contractor	Engineer	1 working day of completion of the lot
Segregation[1]			
Longitudinal joint density[1]			
Thermal profile[1]			
Placement Quality Assurance			
In-place air voids[1]	Engineer	Contractor	1 working day after receiving the trimmed cores[5]
Segregation[3]			1 working day of completion of the lot
Longitudinal joint density[3]			
Thermal profile[3]			
Aging ratio[4]			
Payment adjustment summary	Engineer	Contractor	2 working days of performing all required tests and receiving Contractor test data

1. These tests are required on every sublot.
2. Optional test. When performed on split samples, report the results as soon as they become available.
3. To be performed at the frequency specified in Table 17 or as shown on the plans.
4. To be reported as soon as the results become available.
5. Two days are allowed if cores cannot be dried to constant weight within 1 day.

4.3. **Mixture Design**.

4.3.1. **Design Requirements**. Use the SP design procedure provided in Tex-204-F, unless otherwise shown on the plans. Design the mixture to meet the requirements listed in Tables 1, 2, 3, 4, 5, 8, 9, 10, and 11.

Design the mixture at 50 gyrations (Ndesign). Use a target laboratory-molded density of 96.0% to design the mixture; however, adjustments can be made to the Ndesign value as noted in Table 10. The Ndesign level may be reduced to at least 35 gyrations at the Contractor's discretion.

Use an approved laboratory from the Department's MPL to perform the Hamburg Wheel test and provide results with the mixture design or provide the laboratory mixture and request that the Department perform the Hamburg Wheel test. The Engineer will be allowed 10 working days to provide the Contractor with Hamburg Wheel test results on the laboratory mixture design.

The Engineer will provide the mixture design when shown on the plans. The Contractor may submit a new mixture design at any time during the project. The Engineer must verify and approve all mixture designs (JMF1) before the Contractor can begin production.

The aggregate gradation may pass below or through the reference zone shown in Table 9 unless otherwise shown on the plans. Design a mixture with a gradation that has stone-on-stone contact and passes below the reference zone shown in Table 9 when shown on the plans. Verify stone-on-stone contact using the method given in the SP design procedure in Tex-204-F, Part IV.

Provide the Engineer with a mixture design report using the Department-provided template. Include the following items in the report.

- The combined aggregate gradation, source, specific gravity, and percent of each material used
- Asphalt binder content and aggregate gradation of RAP and RAS stockpiles
- The Ndesign level used
- Results of all applicable tests
- The mixing and molding temperatures
- The signature of the Level 2 person or persons that performed the design
- The date the mixture design was performed
- A unique identification number for the mixture design

Table 8
Master Gradation Limits (% Passing by Weight or Volume)
and VMA Requirements

Sieve Size	SP-B Intermediate	SP-C Surface	SP-D Fine Mixture
2"	–	–	–
1-1/2"	100.0[1]	–	–
1"	98.0–100.0	100.0[1]	–
3/4"	90.0–100.0	98.0–100.0	100.0[1]
1/2"	Note[2]	90.0–100.0	98.0–100.0
3/8"	–	Note[2]	90.0–100.0
#4	23.0–90.0	28.0–90.0	32.0–90.0
#8	23.0–34.6	28.0–37.0	32.0–40.0
#16	2.0–28.3	2.0–31.6	2.0–37.6
#30	2.0–20.7	2.0–23.1	2.0–27.5
#50	2.0–13.7	2.0–15.5	2.0–18.7
#200	2.0–8.0	2.0–10.0	2.0–10.0
Design VMA, % Minimum			
–	14.0	15.0	16.0
Production (Plant-Produced) VMA, % Minimum			
–	13.5	14.5	15.5

1. Defined as maximum sieve size. No tolerance allowed.
2. Must retain at least 10% cumulative.

Table 9
Reference Zones (% Passing by Weight or Volume)

Sieve Size	SP-B Intermediate	SP-C Surface	SP-D Fine Mixture
2"	–	–	–
1-1/2"	–	–	–
1"	–	–	–
3/4"	–	–	–
1/2"	–	–	–
3/8"	–	–	–
#4	–	–	–
#8	34.6–34.6	39.1–39.1	47.2–47.2
#16	22.3–28.3	25.6–31.6	31.6–37.6
#30	16.7–20.7	19.1–23.1	23.5–27.5
#50	13.7–13.7	15.5–15.5	18.7–18.7
#200	–	–	–

Table 10
Laboratory Mixture Design Properties

Mixture Property	Test Method	Requirement
Target laboratory-molded density, %	Tex-207-F	96.0
Design gyrations (Ndesign)	Tex-241-F	50[1]
Indirect tensile strength (dry), psi	Tex-226-F	85–200[2]
Dust/asphalt binder ratio[3]	–	0.6–1.4
Boil test[4]	Tex-530-C	–

1. Adjust within a range of 35–100 gyrations when shown on the plans or Specification or mutually agreed between the Engineer and Contractor.
2. The Engineer may allow the IDT strength to exceed 200 psi if the corresponding Hamburg Wheel rut depth is greater than 3.0 mm and less than 12.5 mm.
3. Defined as % passing #200 sieve divided by asphalt binder content.
4. Used to establish baseline for comparison to production results. May be waived when approved.

Table 11
Hamburg Wheel Test Requirements

High-Temperature Binder Grade	Test Method	Minimum # of Passes @ 12.5 mm[1] Rut Depth, Tested @ 50°C
PG 64 or lower	Tex-242-F	10,000[2]
PG 70		15,000[3]
PG 76 or higher		20,000

1. When the rut depth at the required minimum number of passes is less than 3 mm, the Engineer may require the Contractor to lower the Ndesign level to at least 35 gyrations.
2. May be decreased to at least 5,000 passes when shown on the plans.
3. May be decreased to at least 10,000 passes when shown on the plans.

4.3.2. **Storage and Heating of Materials**. Do not heat the asphalt binder above the temperatures specified in Item 300, “Asphalts, Oils, and Emulsions,” or outside the manufacturer’s recommended values. Provide the Engineer with daily records of asphalt binder and hot-mix asphalt discharge temperatures (in legible and discernible increments) in accordance with Item 320, “Equipment for Asphalt Concrete Pavement,” unless otherwise directed. Do not store mixture for a period long enough to affect the quality of the mixture, nor in any case longer than 12 hr. unless otherwise approved.

4.3.3. **Mixing and Discharge of Materials**. Notify the Engineer of the target discharge temperature and produce the mixture within 25°F of the target. Monitor the temperature of the material in the truck before shipping to ensure that it does not exceed the maximum production temperatures listed in Table 13 (or 275°F for warm-mix asphalt (WMA)). The Department will not pay for or allow placement of any mixture produced above the maximum production temperatures listed in Table 13.

Table 13
Maximum Production Temperature

High-Temperature Binder Grade[1]	Maximum Production Temperature
PG 64	325°F
PG 70	335°F
PG 76	345°F

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.

Produce WMA within the target discharge temperature range of 215°F and 275°F when WMA is required. Take corrective action any time the discharge temperature of the WMA exceeds the target discharge range. The Engineer may suspend production operations if the Contractor's corrective action is not successful at controlling the production temperature within the target discharge range. Note that when WMA is produced, it may be necessary to adjust burners to ensure complete combustion such that no burner fuel residue remains in the mixture.

Control the mixing time and temperature so that substantially all moisture is removed from the mixture before discharging from the plant. Determine the moisture content, if requested, by oven-drying in accordance with Tex-212-F, Part II, and verify that the mixture contains no more than 0.2% of moisture by weight. Obtain the sample immediately after discharging the mixture into the truck and perform the test promptly.

4.4. **Hauling Operations**. Clean all truck beds before use to ensure that mixture is not contaminated. Use a release agent shown on the Department's MPL to coat the inside bed of the truck when necessary.

Use belly dumps, live bottom, or end dump trucks to haul and transfer mixture, however, with exception of paving miscellaneous areas, end dump trucks are only allowed when used in conjunction with a material transfer device with remixing capability or when a thermal imaging system is used unless otherwise allowed. Use other hauling equipment only when allowed.

4.4.1. **Asphalt Binder Sampling.** Obtain a 1-qt. sample of the asphalt binder witnessed for each lot of mixture produced. The Contractor will notify the Engineer when the sampling will occur. Obtain the sample at approximately the same time the mixture random sample is obtained. Sample from a port located immediately upstream from the mixing drum or pug mill and upstream from the introduction of any additives in accordance with Tex-500-C, Part II. Label the can with the corresponding lot and sublot numbers, producer, producer facility location, grade, district, date sampled, and project information including highway and CSJ. The Engineer will retain these samples for one year. The Engineer may also obtain independent samples. If obtaining an independent asphalt binder sample and upon request of the Contractor, the Engineer will split a sample of the asphalt binder with the Contractor.

At least once per project, the Engineer will collect split samples of each binder grade and source used. The Engineer will submit one split sample to MTD to verify compliance with Item 300 and will retain the other split sample for 1 yr.

4.4.2. **Individual Loads of Hot-Mix**. The Engineer can reject individual truckloads of hot-mix. When a load of hot-mix is rejected for reasons other than temperature, contamination, or excessive uncoated particles, the Contractor may request that the rejected load be tested. Make this request within 4 hr. of rejection. The Engineer will sample and test the mixture. If test results are within the operational tolerances shown in Table 12, payment will be made for the load. If test results are not within operational tolerances, no payment will be made for the load.

5. MEASUREMENT

5.1. **Superpave Mixtures**. Hot mix will be measured by the ton of composite hot-mix, which includes asphalt, aggregate, and additives. Measure the weight on scales in accordance with Item 520, "Weighing and Measuring Equipment."

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under Article 8017.5, "Measurement," will be paid for at the unit bid price for "Superpave Mixtures" of the mixture type and binder specified.

6.1. **Material (Pick up)**. Payment will be made for the type and grade specified. This price is full compensation for furnishing materials, assistance provided in sampling, loading provided vehicles, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals.

6.2. **Material (Delivery)**. Payment will be made for the type and grade specified. This price is full compensation for furnishing materials, stockpiling, loading, hauling, delivery of materials to the roadway operation, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals.