

CONTRACT DOCUMENTS

FOR

LIQUID ASPHALT FOR TAR & CHIP WORK

ALLEN COUNTY, OHIO

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ADVERTISEMENT

NOTICE TO BIDDERS

LIQUID ASPHALT FOR TAR & CHIP WORK

ALLEN COUNTY, OHIO

Sealed bids will be received at the office of the Board of Allen County Commissioners; Court of Appeals Building, 3rd Floor; 204 North Main Street; Lima, Ohio 45801, until **11:00 A. M., May 4, 2018**, at which time they will be opened and publicly read aloud. Bids will be for approximately 466,710 gallons of HFRS-2P liquid asphalt for force account tar and chip work on county and township roads, as specified in the Ohio Department of Transportation Supplemental Specification 422, dated January 1, 2016, (no CRS-2P) and additional specifications by the Allen County Engineer. Prices to be indicated as delivered to the job site or to the Allen County Highway Garage; 1501 North Sugar Street; Lima, Ohio. Also, Allen County will not pay demurrage charges when loads are not delivered at specified times, and will not pay demurrage for the first two hours of delivery by the trucker. The Allen County Engineer will require periodic sample testing of the asphalt product by an independent testing company, which shall be paid for by the supplying company as part of the bid price.

All contractors and subcontractors involved with the project will, to the extent practicable use Ohio products, materials, services, and labor in the implementation of their project. Additionally, contractor compliance with the equal employment opportunity requirements of Ohio Administrative Code Chapter 123, the Governor's Executive Order of 1972, and Governor's Executive Order 84-9 shall be required.

On Friday, April 20, 2018, specifications and contract bid documents may be obtained from the office of the Allen County Engineer; 1501 North Sugar Street; Lima, Ohio 45801. There will be a \$5.00 charge per set, which is non-refundable. Checks should be made payable to the Allen County Engineer.

Each bidder is required to furnish with its proposal, a 1% bid bond in accordance with Section 307.88 of the Ohio Revised Code. Bid bond shall be a bond, certified check, cashier's check or money order on a solvent bank or savings and loan association.

Each Proposal must contain the full name of the party or parties submitting the proposal and all persons interested therein.

All bids shall be sealed and addressed to the Board of Allen County Commissioners; 204 N. Main Street; Lima, Ohio 45801 and marked "**SEALED BID - LIQUID ASPHALT FOR TAR & CHIP WORK**" on the outside of the envelope.

No bidder shall be permitted to withdraw its bid for a period of thirty (30) days after the time of bid opening.

The Board of Allen County Commissioners, Allen County, Ohio reserves the right to reject any or all bids submitted or to waive any irregularities pursuant to Section 9.31 of the Revised Code.

By order of the Board of Allen County Commissioners, Allen County, Ohio
Kelli Singhaus
Clerk of Board of County Commissioners
Allen County, Ohio

INSTRUCTIONS TO BIDDERS

DATE AND PLACE FOR OPENING PROPOSALS. Pursuant to the Legal Notice, sealed proposals for performing the work will be received by the Board of County Commissioners of Allen County, Ohio.

At the time and place set forth in said notice, they will be publicly opened by the Board of County Commissioners and read; the awarding of the contract, if awarded, will be made by the Board of County Commissioners as soon thereafter as practicable.

FORM FOR PROPOSALS. All proposals shall be made upon the blank forms of proposal attached hereto, and should give the lump sum or unit prices for the work, and must be signed by the bidder in accordance with the directions in the form of proposal.

OMISSION AND DISCREPANCIES. Should a bidder find discrepancies in, or omissions from the drawings or other contract documents, or should he be in doubt as to their meaning, he shall at once notify the Engineer who may send a written instruction to all bidders.

ACCEPTANCE OR REJECTION OF PROPOSALS. The County reserves the right to reject any/or all proposals. Without limiting the generality of the foregoing, any proposal having erasures or corrections in the price sheet may be rejected; any proposal in which unit prices are omitted or in which unit prices are unbalanced may be rejected; any proposal accompanied by the insufficient or irregular bond or certified check may be rejected.

BID BOND, CERTIFIED CHECK, CASHIER'S CHECK OR MONEY ORDER. All proposals shall be accompanied by a bid bond, certified check, cashier's check or money order on a solvent bank or savings and loan association, for one percent (1%) of the bid, made payable to the Allen County Treasurer. Such bond, certified check, cashier's check or money order is to serve as a guarantee that if the proposal is accepted, a contract will be entered into and the performance of it properly secured.

All bid bonds certified checks, cashier's checks or money orders shall be returned on demand within ten (10) days after the proposals are opened - except those of the three (3) lowest bidders, which shall be held until the successful bidder has executed the contract. Thereafter, all remaining proposal bonds, certified checks, cashier's checks or letter of credit will be returned.

ACCEPTANCE OF PROPOSAL. Within thirty (30) days after the opening of proposals, the Board of County commissioners will act upon the proposal. The acceptance of a proposal shall bind the successful bidder to execute the contract and be responsible for liquidated damages as provided herein. The rights and obligations provided for in the contract shall become effective and binding upon the parties only with its formal execution by the Board of County Commissioners.

DAMAGES FOR FAILURE TO EXECUTE CONTRACT. Any bidder whose proposal is accepted will be required to execute the contract within ten (10) days after the notice that the contract has been awarded to him. Failure or neglect to do so shall constitute a breach of the agreement affected by the acceptance of the proposal.

The amount of the proposal bond, certified check, cashier's check or letter of credit accompanying the proposal shall be retained by the County as liquidated damages for such breach. In the event any bidder whose proposal shall be accepted fails or refused to execute the contract, as herein provided, the Board of County Commissioners may, at their option, determine that such bidder has abandoned the contract and thereupon his proposal and the acceptance thereof shall be null and void and the County shall be entitled to liquidated damages as above provided.

COMMENCEMENT OF WORK. The Supplier shall begin delivery of the liquid asphalt within two (2) days after the signing of the Contract between the Contractor and the Board of Allen County Commissioners.

Unless otherwise agreed upon by the Engineer, delivery shall be within twenty-four (24) hours after which the Engineer requests delivery to the job site or county garage.

PRICES. Prices to be indicated as delivered to the job site or to the Allen County Highway Garage; 1501 North Sugar Street; Lima, Ohio. Also, Allen County will not pay demurrage charges when loads are not delivered at specified times, and will not pay demurrage for the first two hours of delivery by the trucker. The Allen County Engineer will require periodic sample testing of the asphalt product by an independent testing company, which shall be paid for by the supplying company as part of the bid price.

INTERPRETATIONS AND ADDENDA. No oral interpretation shall be made to any bidder as to the meaning of any of the contract documents, or be effective to modify any of the contract documents. Every request for an interpretation shall be made in writing and addressed to Brion E. Rhodes, Allen County Engineer; 1501 N. Sugar Street; Lima, Ohio 45801.

UNIT PRICE. The unit price specified in the "**Unit Price Bid**" column will govern the awarding of the contract.

The Contractor shall make the extension in "**Total Amount Bid**" column and also add up the totals. However, the unit prices specified, together with approximate quantities, shall determine the total amount of the bid. If there is an error made in the extensions of the bidder, the total shall be changed, as only the unit price shall govern.

AWARDING OF CONTRACT. The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, whose qualifications indicate the award will be in the best interest of the County and whose proposal complies with all the prescribed requirements. No Notice of Award will be given until the Allen County Engineer has concluded such investigations as he deems necessary to establish the responsibility, qualifications and financial ability of the Bidders to do the work in accordance with the Contract Documents to the satisfaction of the County within the time prescribed. The County reserves the right to reject the Proposal of any Bidder who does not pass such investigation to the Allen County Engineer's satisfaction. In analyzing Proposals, the Allen County Engineer may take into consideration unit prices.

BIDDER REPRESENTS. The Bidder represents that he has read and understands the Documents: the conditions under which the liquid asphalt is to be supplied; that he understands that no claim for additional compensation or extension of time will be allowed because of alleged misunderstanding of Document; and that his Bid is based on the material specifications, delivery, and sample testing described in the Documents, without exception.

PROPOSAL

Proposal of _____

Bidder

Address

For: To supply approximately 466,710 gallons of HFRS-2P polymerized liquid asphalt for Allen County force account tar and chip work on county and township roads, delivered to the job sites or to the Allen County garage, 1501 N. Sugar Street, Lima, Ohio, as directed by the County Engineer.

To: The Honorable Board of County Commissioners
Allen County, Lima, Ohio

The undersigned bidder has carefully examined the form of the Contract, the General Conditions, and the Specifications for the **LIQUID ASPHALT FOR TAR & CHIP WORK** above described and referred to in the Legal Notice, inviting proposals to supply the material. The bidder will provide all necessary delivery vehicles, drivers and tanker equipment called for by said Specifications, and General conditions, in the manner prescribed therein and in said Contract, and in accordance with the requirements of the Engineer under them, for the sum of

_____ Dollars, (\$_____).

The undersigned bidder understands that the quantity of material shown herein is approximate only and is subject to increase or decrease at the unit prices stated in the following schedules.

<u>Ref. No.</u>	<u>Item No.</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total Amount</u>
1	SS 422.02	HFRS-2P polymerized liquid asphalt (SBS polymer modifier only), FOB job site or county Garage	466,710	Gallon	\$ _____	\$ _____
2	103	Premium on Bid Bond	Lump	Lump	\$ _____	\$ _____
PROPOSED TOTAL COST					\$ _____	

The undersigned also agrees as follows:

FIRST: Within ten (10) days from the date of notice of acceptance of this proposal, to execute the contract and to furnish to the County, a satisfactory performance bond in the amount of one hundred percent (100%) of the amount of the contract, guaranteeing the faithful delivery of said materials and the payment of bills to subcontractors.

SECOND: To begin delivery of the polymerized liquid asphalt to Allen County within two (2) working days of the signing of this contract.

THIRD: To provide extra material as needed covered by the above schedule of prices which may be ordered by the Engineer, and to accept as full compensation thereof, such prices at the unit price stated above.

FOURTH: To pay for the periodic testing of samples of the material taken by the Allen County Engineer and sent to an independent testing laboratory specified by the Allen County Engineer.

Enclosed herewith is a proposal guarantee, as defined in the attached Instructions to Bidders, in the amount of _____, (\$ _____) which proposal guarantees the undersigned Bidder agrees to be forfeited to and become the property of the County as liquidated damages, should the Proposal be accepted and the Contract awarded him and he fails to enter into contract in the form prescribed and to furnish the required bond within ten (10) days as stipulated.

The following persons, firms or corporations are interested with the undersigned Bidder in this Proposal (subcontractors):

Name

Address

Name

Address

If there are no such persons, firms or corporations, please so state in the following space

Dated at _____, this _____ day of _____, 2018.

Signature of Bidder:

If an individual: _____, doing business

as _____

If a partnership: _____

by _____, Partner

If a corporation: _____

a _____, Corporation

by _____

Title

Business address of Bidder:

Street

City State

(____) _____
Phone Number

NONCOLLUSION AFFIDAVIT

COUNTY OF _____)
STATE OF _____) SS.

_____, being first sworn, says
(Name of individual)

that he is _____ of
(title-owner, partner, president, secretary)

_____, submitting
(Name of organization)

the foregoing bid for **LIQUID ASPHALT FOR TAR & CHIP WORK**: that such bid is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation, that such bid is genuine and not collusive or sham that said bidder to put in a false or sham bid, and not directly or indirectly solicited any other bidder to put in a sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that any one shall refrain from bidding; that said bidder or of any other bidder, or to fix any overhead, profit, or cost element of such bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract, that all statements contained in such bid are true; and further, that said bidder has not, directly or indirectly, submitted his bid price or any breakdown thereof, or paid and will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, or to any other individual except to such person or person as a partnership or other financial interest with said bidder in his general business.

(Affidavit)

Sworn to before me this _____ day of _____, 2018.

(Notary Public)

County of _____, State of _____

My commission expires _____

NOTE: THIS FORM SHALL BE SUBMITTED ALONG WITH THE PROPOSAL AND PROPOSAL BOND.

CONTRACT

THIS AGREEMENT made the _____ day of _____ by and between the Board of County Commissioners, Allen County, Ohio, hereinafter called the COUNTY, and _____, hereinafter called the CONTRACTOR.

WITNESSETH, that the CONTRACTOR and COUNTY, for the consideration hereinafter named agree as follows:

1. The CONTRACTOR shall supply approximately 466,710 gallons of HFRS-2P polymerized liquid asphalt for Allen County force account tar and chip work on county and township roads, delivered to the job sites or to the Allen County garage, 1501 N. Sugar Street, Lima, Ohio, as directed by the County Engineer, and described in the bid specifications entitled **LIQUID ASPHALT FOR TAR & CHIP WORK; ALLEN COUNTY, OHIO**; prepared by: Allen County Engineer; 1501 N. Sugar Street; Lima, Ohio 45801, entitled Engineer, and shall do everything required in this agreement, the General Conditions of the Contract, and the Specifications.
2. To begin delivery of the polymerized liquid asphalt to Allen County within two (2) working days of the signing of this contract.
3. The COUNTY shall pay the CONTRACTOR for the faithful performance of the Contract, subject to the addition and deduction provided therein for the sum of _____ (\$ _____), more or less. It is understood and agreed that this is a Unit Price Contract.
4. The COUNTY shall make payments on the account of the Contract as provided therein as follows:

Upon receipt of an invoice for a delivery, the COUNTY will make a payment on that invoice to the CONTRACTOR in the amount of one hundred percent (100%) on the basis of the value of the unit price as stated in the Unit Price Contract for material supplied in the project thereof, as estimated by the ENGINEER.

5. Periodically, the ENGINEER and COUNTY will check test results of the material that has been delivered. Before issuance of payment, the COUNTY shall ensure the material meets specifications under the Contract. The material shall arrive at the job site or the Allen County Highway Garage at a minimum temperature of 180° F. All supplier's tankers must have an accurate working temperature gage that can be easily read upon delivery of the material. The cost for testing shall be paid directly by the contractor to the independent testing lab.

The making and accepting of the final payment shall constitute a waiver of all claims by the COUNTY, other than those arising from materials not meeting specifications, appearing after final payment, and of all claims by the CONTRACTOR, except those previously made and still unsettled.

6. The General Conditions of the Contract, the Advertisement, the Specifications, Instructions to Bidders, and Proposal, together with this Agreement, form the Contract, and they are fully part of the Contract as if attached hereto or herein repeated.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand and executed this Contract, the day and year first above written.

Witnessed by:

The Board of County Commissioners
Allen County, Ohio

Contractor

Approved as to form only,

By _____

Allen County Prosecuting Attorney
Allen County, Ohio

I hereby certify that the funds necessary to meet the terms and conditions of this agreement have been lawfully appropriated or authorized or directed for said purpose, and is in the treasury or in the process of collection, to the credit of the fund designated for this purpose, free from any previous or now outstanding obligations or certificates.

Auditor, Allen County, Ohio

CERTIFICATION OF PERSONAL PROPERTY TAX

STATE OF OHIO)
) SS
COUNTY OF _____)

_____ being duly sworn that he is the owner or an officer of _____, said _____ having been awarded a public contract let by competitive bid and that by this statement, says that at this time, neither he nor the corporation is charged with any delinquent personal property taxes on the general tax list of personal property of any county, or that attached is a list of all delinquent taxes charged against the person or corporation.

_____, being first duly sworn, deposes and says that this statement made above, concerning delinquent personal property taxes is true.

Notary Public

_____, being the fiscal officer of _____, a political subdivision of the State of Ohio, here certifies the above statement to the county treasurer.

Fiscal Officer of _____ County
Political Subdivision

This certification is in compliance with Section 5719.052 of the Ohio Revised Code, which requires a certification of delinquent personal property by any successful bidder prior to the execution of the contract of a political subdivision and in the event there are any due and unpaid delinquent taxes, a copy of this statement shall be transmitted to the county treasurer within thirty days.

NOTE: THIS FORM SHALL BE SUBMITTED ALONG WITH THE PROPOSAL AND PROPOSAL BOND.

**CERTIFICATION OF SAFETY TRAINING AND
DRUG & ALCOHOL POLICY**

It is the policy of the Allen County Engineer's Office that all Contractors and Subcontractors, while engaged in work with the Engineer's office, will provide Safety Training and comply with State and Federal O.S.H.A. Requirements and all Federal Rules and Regulations regarding Drug and Alcohol Policy. An affidavit of proof of written Safety Program, Hazardous Communication Program, and Drug and Alcohol Policy must be filed with this office prior to being awarded a Contract.

**AFFIDAVIT OF CONTRACTOR
OR SUBCONTRACTOR**

I _____, _____,
Name of Person Signing Title
representing _____, do hereby certify that we are now in
Company Name

compliance with State and Federal O.S.H.A. & D.O.T. requirements and will comply with requirements for the life of our Contract for the construction of:

Name of Project

and do hereinafter certify that we provide to our employees:

(Please check below if in compliance)

- ___ Employee Safety Training
- ___ A Written Safety Program
- ___ A Hazardous Communication Program
- ___ Drug & Alcohol Testing Program (if required by D.O.T.)

Signature of Officer or Agent

Sworn to and subscribed in my presence this ____ day of, 2018.

NOTE: THIS FORM SHALL BE SUBMITTED ALONG WITH THE PROPOSAL AND PROPOSAL BOND.

CERTIFICATION PURSUANT TO SECTION 3517.13 OF THE OHIO REVISED CODE

(Name of business entity)

It is hereby certified that all of the persons listed below are in compliance with respect to prohibited activities constituting a conflict of interest or other violations under Ohio Revised Code Section 3517.13, and further stated that the undersigned has the authority to make the following representation on behalf of himself or herself or of the business entity:

1. That none of the following has **individually** made after April 4, 2007, and that, if awarded a contract for the purchase of goods or services with a cost aggregating more than \$10,000 in a calendar year, none of the following **individually** will make, beginning on the date the contract is awarded and extending until one year following the conclusion of the contract, as an individual, one or more campaign contributions totaling in excess of \$1,000 to the Allen County Engineer or his individual campaign committee:
 - a. myself (if applicable);
 - b. any partner or owner or shareholder of the partnership (if applicable);
 - c. any owner of more than 20% of the corporation or business trust (if applicable);
 - d. each spouse of any person identified in (a) through (c) of this section;
 - e. each child seven years of age to seventeen years of age of any person identified in divisions (a) through (c) of this section (only applicable to contributions made on or after January 1, 2007).

2. That none of the following have **collectively** made after April 4, 2007, and that, if awarded a contract for the purchase of goods or services with a cost aggregating more than \$10,000 in a calendar year, none of the following **collectively** will make, beginning on the date the contract is awarded and extending until one year following the conclusion of the contract, one or more campaign contributions totaling in excess of \$2,000 to the Allen County Engineer or his individual campaign committee:
 - a. myself (if applicable);
 - b. any partner or owner or shareholder of the partnership (if applicable);
 - c. any owner of more than 20% of the corporation or business trust (if applicable);
 - d. each spouse of any person identified in (a) through (c) of this section;
 - e. each child seven years of age to seventeen years of age of any person identified in divisions (a) through (c) of this section;
 - f. any political action committee affiliated with any person identified in divisions (a) through (c) of this section.

Printed Name _____

Signature _____

Title: _____

Date: _____

NOTE: THIS FORM SHALL BE SUBMITTED ALONG WITH THE PROPOSAL AND PROPOSAL BOND.

GENERAL CONDITIONS

1. The Contract Documents are complimentary, and what is called for by any one shall be binding as if called for by all. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the delivery of material. Materials or work described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.
2. Definition and Terms.
 - (a) **The State.** Whenever the term "The State" appears in the specifications, it shall be changed to mean Allen County, acting through its authorized representative.
 - (b) **Department.** Whenever the term "The Department" appears in the specifications it shall be changed to mean the office of the Allen County Engineer.
 - (c) **Director.** Whenever the term "The Director" appears in the specifications it shall be changed to mean the Allen County Engineer.
 - (d) **The Engineer.** Whenever the word "Engineer" appears in the Contract Documents or specifications it shall mean the Allen County Engineer or his duly authorized representative.
 - (e) **County.** Whenever the work "County" appears in the Contract Documents it shall mean Allen County or its representative as appropriate.
3. The Engineer shall furnish to the Contractor free of charge, two (2) copies of the specifications necessary for the supplying of materials.
4. The Contractor shall provide and pay for all materials, labor, water, tools, equipment, lights, power, transportation and other facilities necessary for the execution and completion of this contract. All materials shall be as specified in this document and of good quality. The Contractor shall, if required, furnish satisfactory evidence of the quality and kind of materials.
5. The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in work assigned to him.
6. The Contractor shall pay all royalties and license fees. He shall defend all suits and claims for infringements of any patent rights and shall save the County harmless from loss on account thereof.
7. Permits and licenses of a temporary nature necessary for the prosecution of the delivery of materials shall be secured by the Contractor.

8. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulation bearing on the conduct of the delivery of materials as specified. If the Contractor observes that the specifications are a variance therewith, he shall promptly notify the Engineer, and any necessary change shall be adjusted as provided in the Contract for changes in the material.
9. In an emergency affecting the safety of life, the Contractor, without special instructions or authorization from the Engineer, is hereby permitted to act at his discretion to prevent such threatened loss of injury and he shall so act without appeal, if so instructed and authorized.
10. The Engineer shall periodically sample the material being delivered by methods approved by an independent test company. The material shall arrive at the job site or the Allen County Highway Garage at a minimum temperature of 180° F. All supplier's tankers must have an accurate working temperature gage that can be easily read upon delivery of the material. The Engineer shall send samples to an independent testing company for analysis and testing for compliance with the specifications. The Contractor shall pay for the testing by the independent testing company. The results of said tests shall be made available to the Contractor by the testing company or the Engineer. If test results indicate non-compliance with specifications, the Engineer may order an immediate stop to the delivery of all materials and the application of said materials, until another sample can be taken for testing. The Contractor may choose to pay for another independent testing company, approved by the Engineer, to sample and test the material for compliance with specifications. Successive failure of the material to meet specifications as indicated by the result of independent testing, may cause the termination of the contract by the County. Payment shall be made to the Contractor for the material already delivered that met specifications.
11. The Contractor shall provide a person with adequate knowledge of the material to be present during the first two (2) days of application of the material by county forces to recommend application procedures and application rates.
12. The County, without invalidating the Contract, subject to Section 5555.69 O. R. C., may order the adding to or deducting from the bid quantity, the Contract amount being adjusted accordingly.
13. If the Contractor should be adjudged bankrupt, or if he in any manner becomes financially insolvent, or if he should refuse or fail to supply properly skilled workmen or proper materials or otherwise be guilty of a substantial violation of the terms of the Contract, then the County, upon written certification by the Engineer that sufficient cause exists to justify such action, may, without prejudice to any other remedy and after giving the Contractor seven (7) days written notice, terminate the employment of the Contractor.
14. If the Contractor should neglect to prosecute the delivery of materials properly or fail to perform any provision of the Contract, the County, after three (3) days written notice to the Contractor, may without prejudice to any other remedy it may have, make good such

deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

15. If delivery of materials should be stopped under an order of any court or other public authority for a period of three (3) months through no act or fault of the Contractor or of anyone employed by him, or if the County should fail to pay the Contractor within thirty (30) days of its maturity and presentation, any sum certified by the Engineer or awarded by arbitrators, then the Contractor may, upon seven (7) days written notice, terminate the Contract and recover from the County payment for material delivered that met specifications including any retainage.
16. The County may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to such extent as may be necessary to protect itself from loss on account of:
 - (a) Defective material according to specifications.
 - (b) Claims filed or evidence indicating probable filing.
 - (c) Failure of the Contractor to pay bills.
 - (d) Doubt that the Contract can be completed for the balance then unpaid.
17. The Contractor shall indemnify and save harmless the County from and against all losses, all claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against the County, by reason of any act or omission of the said Contractor, his agents or employees, in the execution of the work.
18. The Contractor shall not start work under this Contract until he has obtained all the insurance required hereunder and has submitted copies of the appropriate insurance as evidence of coverage to the County Engineer for his approval. The Contractor shall not allow any subcontractor to start work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved.
19. The Contractor and each subcontractor shall procure and maintain, during the life of this Contract, Worker's Compensation Insurance, General Liability Insurance in an amount not less than \$1,000,000 per occurrence for injuries, including accidental death to any one person and subject to the same limit for each person in an amount of not less than \$1,000,000 on the account of any one accident and Allen County must be listed as additionally insured.
20. The Contractor shall procure and maintain a Builders Risk Policy for the said project during the life of this Contract.
21. The Contractor shall procure, maintain and provide a copy to the County, during the life of this Contract, a Worker's Compensation Certificate for all their employees who are working at the project site under this Contract. All subcontractors shall likewise provide Worker's Compensation for all their employees who are working at this project site.
22. The Contractor will comply with Sections 153.59, 4112.02 and 153.60 O. R. C.

Discrimination and Intimidation on Account of Race, Creed, Sex, Handicap or Color, and Forfeiture, when performing the work on this project.

23. An individual, firm or corporation to whom the Contractor sublets part of the Contract to be performed on this project who, prior to such undertaking, shall receive the written consent of the Engineer.

2018 SPECIFICATIONS

The State of Ohio, Department of Highways, Supplemental Specification 422 (attached), dated January 1, 2016, also the State of Ohio, Department of Highways, Supplemental Specification 702 (attached), dated January 1, 2016, and additional specifications as outlined in the General Conditions, and below shall govern this improvement.

The material shall arrive at the job site or the Allen County Highway Garage at a minimum temperature of 180° F. All supplier's tankers must have an accurate working temperature gage that can be easily read upon delivery of the material.

The Asphalt modifier shall be of an SBS polymer (Styrene-Butadiene-Styrene). The modifier shall be added to the asphalt cement prior to the emulsification process.

The percent of polymer required to be used in the liquid asphalt will not be specified in the specifications but rather should be determined by the asphalt emulsion being able to pass the Elastic Recovery and Toughness/Tenacity tests listed in section 422.02 of ODOT Supplemental Specification No. 422.

ODOT SUPPLEMENT SPECIFICATION 422
CHIP SEAL WITH POLYMER BINDER
January 1, 2016

422.01	Description
422.02	Materials
422.03	Equipment
422.04	Weather Limitations
422.05	Test Strip
422.06	Surface Preparation
422.07	Binder Application
422.08	Cover Aggregate Application
422.09	Construction Operation
422.10	Quality Control
422.11	Acceptance
422.12	Performance Review
422.13	Method of Measurement
422.14	Basis of Payment

422.01 Description. This work consists of preparing and applying a single or double chip seal. Warrant exposed chip seals for two years.

422.02 Materials. Use polymer emulsified binder conforming to [702.16](#) Type A.

Provide aggregate consisting of washed limestone or washed dolomite conforming to [703.05](#). Do not use an aggregate source designated with “SR” on the Aggregate Source Group list in accordance with [703.01.F](#). Additionally the following requirements apply:

Stockpile the material to be used for the chip seal at the aggregate source.

Obtain five (5) samples from the stockpile and perform gradation testing on each sample and determine the percent passing for each sieve size listed in Table [422.02-1](#)

- A. Calculate the total range for the No. 8 (2.36 mm) sieve for all five samples. The range will not exceed 6%.
- B. Calculate the percent passing the No. 200 (75 µm) sieve for each sample. No single sample value will exceed 2.0 percent.
- C. Calculate the average of each sieve for all five samples. Ensure the average value for each sieve is within the requirements of Table [422.02-1](#).

Submit a letter to the Engineer and [District Testing](#) containing the JMF gradations and the calculations to show the cover aggregate meets requirements.

If a staging location will be used for the chip seal aggregate first move the initially tested aggregates from the aggregate source stockpile to the staging location and construct a staging stockpile. Then obtain five (5) aggregate samples from the staging location stockpile and perform gradation testing on each sample to determine the percent passing for each sieve size listed in Table [422.02-1](#).

Evaluate the staging location aggregate samples the same as the aggregate source samples except allow an average for the No. 200 (75 µm) sieve not greater than 1.7 percent.

Submit the JMF gradations from the staged stockpile and the calculations to show the cover aggregate meets requirements in letter form to the Engineer and [District Testing](#).

If the chip seal aggregates fail to meet requirements, either at the aggregate source or the staging location, re-wash and/or rework the aggregate materials and retest the new stockpiles.

TABLE 422.02-1

Sieve Size		Total Percent Passing	
		Type A	Type B
1/2 inch	(12.5 mm)	100	
3/8 inch	(9.5 mm)	85 to 100	100
No. 4	(4.75 mm)	5 to 25	85 to 100
No. 8	(2.36 mm)	0 to 10	5 to 30
No. 16	(1.18 mm)	0 to 5	0 to 10
No. 200	(75 µm)	0 to 1.5 ^[1]	0 to 1.5 ^[1]

[1]Washed gradation value

The [District](#) may obtain and test verification samples of the JMF aggregates at any time. If a single verification sample is either outside the values in Table [422.02-1](#) with the exception that the No. 200 (75 µm) value is not greater than 2.0 percent, the district will obtain five (5) samples and retest to determine if the aggregate JMF falls within the limits of Table [422.02-1](#). If the JMF verification test doesn't meet the source or staging location limits the stockpile is not acceptable.

422.03 Equipment. Provide equipment conforming to the requirements of this section. Obtain approval of equipment before starting the job.

Use equipment for binder distribution conforming to [407.03](#), except ensure that it has a computerized rate control that automatically adjusts the binder pump to the unit ground speed and has a gauge or meter in plain view for reading gallons (liters). Use appropriate spray nozzles for the material and rate specified. Adjust spray bar and nozzles to provide triple lap coverage.

Use Type II pneumatic tire rollers conforming to [401.13](#) with the exception of the requirements of Table [401.13-1](#) Roller Capacity. Use a minimum of 3 Type II pneumatic tire rollers capable of ballast loading. The roller weight must be between 6 to 8 Tons (5 to 7 metric tons) each to achieve a minimum contact pressure of 80 psi (550 kPa). Tires must be inflated to the proper pressure as specified by the roller manufacturer. Use self-propelled aggregate spreaders with a variable width aggregate hopper capable of placing from 8 to 16 feet (2.4 to 4.8 m) in any increment and a computerized rate control that automatically adjusts the aggregate output to the unit ground speed. Equip spreaders with pneumatic tires, a screen to remove oversized material, revolving cylinders, and adjustments necessary to produce a uniform distribution of particles at the specified rate.

Furnish power sweepers, pickup sweepers, or rotary brooms as required for the initial surface preparation and for removing loose aggregate particles.

Furnish accurate thermometers for determining any of the applicable temperature requirements of this specification.

422.04 Weather Limitations. Place the chip seal when the pavement temperature is between 60 °F (16 °C) and 140 °F (60 °C). Do not schedule the performance of this work for the time period before May 1 or after September 15. Do not place chip seal if any of the following conditions exist:

- A. The atmospheric temperature is below 70 °F (21 °C).
- B. Impending weather conditions do not allow for proper curing.
- C. If temperatures are forecasted below 50 °F (10 °C) within 24 hours from the time of work.

422.05 Test Strip. Construct a continuous 1000-foot (300 m) long by lane width test strip in the presence of the Engineer. Do not waive test strips regardless if the same materials have been used on another project.

Determine the initial binder application rates and aggregate application rates for the test strip to achieve 2/3 aggregate embedment.

For a single chip seal, Type A, an initial target rate of 0.37 ±0.03 gallon per square yard (1.68 L/m²) is recommended for the test strip. For a single chip seal, Type B, an initial target rate of 0.35 ±0.03 gallon per square yard (1.58 L/m²) is recommended for the test strip. For double chip seal, a target rate of 0.36 ±0.03 gallon per

square yard (1.63 L/m²) for the first course and 0.33 ±0.05 gallon per square yard (1.49 L/m²) for the second course is recommended for the test strip. Notify the Engineer of the initial target rates.

Calibrate the aggregate spreader to ensure a uniform application rate in both the transverse and longitudinal directions. Verify the application rates with a one square yard (one square meter) piece of cardboard or other material to collect and weigh the aggregate. Adjust spreader rates to maintain application rate within 10% of the target rate. Do not over apply cover aggregate relying on vacuum and broom sweeping to pick up all excess. Amounts of loose aggregate that create a nuisance to the public will result in work stoppage. If work is stopped by the Engineer recalibrate the aggregate spreader determining a new application rate and apply cover aggregate at the new rate. Verify the aggregate gradation meets [422.10.C](#). during the test strip and provide the results to the Engineer.

The Engineer and Contractor will review the test strip the next workday for streaking, ridging, bleeding, aggregate loss or other problems. If the review shows the test strip meets the requirements of [422.11](#) and the application rate and quality control tests show all is in control compared to the JMF, then progress with the work. Should problems be noted, the Engineer may require another test strip.

JMF gradation targets may be adjusted once within the limits of Table [422.02-1](#) based on results of the approved test strip. Provide adjusted gradation targets to the Engineer and the DET prior to progressing with the work.

422.06 Surface Preparation. Clean the pavement according to [407.05](#). If necessary, clean areas of the pavement with a hand broom.

Remove all existing pavement markings, except [740.02](#) (traffic paint), using an abrasion method conforming to [641.10](#).

For a single chip seal either remove and replace any existing raised pavement markers or protect the existing raised pavement markers from the single chip application process.

For a double chip seal application remove the raised pavement markers according to [621.08](#).

Do not place material until the Engineer approves the existing surface.

422.07 Binder Application. Before applying binder, ensure that sufficient cover aggregate is available for immediate application. Apply the binder at the target rate(s) established from a successful test strip. Ensure distributor spray bar and nozzles are set to provide triple overlap coverage with no streak or drill patterns on the road surface.

Maintain the binder temperature from 150 to 185 °F (65 to 85 °C) during construction, including the start of each day. Reheat the binder at a rate of no more than 25 °F (14 °C) per hour, when the binder is allowed to cool below 150 °F (65 °C).

If the target application rates are not the optimum application rates to achieve proper stone embedment during the actual application, immediately notify the Engineer. Proper stone embedment is 2/3 of the stone chip height and can be checked by pulling out several chips by hand. Adjust and document the new application rate by stationing. Recheck stone embedment after adjustment and obtain the Engineer's approval of the new rate.

Do not allow the binder to streak on the road surface. If the Engineer determines that streaking is occurring, cease operations until the Engineer is satisfied that streaking has been eliminated.

At the beginning and at the end of a contract section, start and stop the application on a removable protective cover (paper, metal sheets, or other suitable material) sufficiently wide enough to allow full application on the surface being treated. Make transverse and longitudinal laps in such manner to ensure that the texture of the finished surface is uniform and continuous. To prevent lapping at transverse junctions, promptly shut off the binder spray at the end of the application. Before continuing the application, place a removable protective cover a sufficient distance back from the joint on the cover aggregate so the sprayers are operating at full force when the distributor has attained the predetermined speed upon reaching the uncovered surface. Upon completion, remove all removable protective covers.

422.08 Cover Aggregate Application. Verify the application rate with a one square yard (one square meter) piece of cardboard or other material to collect and weigh the aggregate before placing binder. Adjust if necessary and re-verify. Record final results and inform the Engineer. Immediately after applying the binder, apply cover aggregate uniformly without ridges or laps at the specified rate adjusted as directed by the Engineer to produce a minimum of excess loose particles. Spread the material in such manner that the tires of the truck or aggregate spreader at no time contact the uncovered and newly applied binder. Before rolling, correct deficiencies in the application of cover aggregate in a manner satisfactory to the Engineer.

After rolling, protect the surface from traffic damage during the period required for the binder to cure sufficiently and prevent dislodging of the aggregate particles by normal traffic. During this period and as directed by the Engineer, correct deficiencies in cover aggregate by spreading additional aggregate or by light brooming.

Apply cover aggregate at a rate necessary to provide full coverage of the binder and to avoid tracking. Do not over apply cover aggregate relying on vacuum and broom sweeping to pick up all excess. Nuisance to the public amounts of aggregate will result in work stoppage. If work is stopped by the Engineer recalibrate the aggregate spreader determining a new application rate and apply cover aggregate at the new rate. If the target rate needs adjustment due to the gradation of the aggregate or due to existing surface conditions of the pavement, immediately notify the Engineer and document the new rate by stationing.

422.09 Construction Operation. Establish stations at 1000-foot (300 m) intervals on the entire project before placing materials. Clearly identify and maintain the stations until project completion.

Keep the binder distributor, aggregate spreader, and rollers as close to each other as possible. Do not allow the binder distributor to be more than 150 feet (45 m) ahead of the aggregate spreader.

Perform rolling immediately after placing the aggregate, but before the binder sets up. Do not leave aggregate unrolled for more than 5 minutes. Perform a minimum of two complete roller passes over the aggregate. A single complete pass is forward and backward over the same path. For each new pass, overlap the previous pass by about one-half the width of the roller. Use a minimum of three rollers, and roll in a longitudinal direction at a speed not greater than 5 miles per hour (8 km/h). Do not operate rollers at speeds that cause pick-up or dislodging of aggregate particles.

Within 4 hours of placement but after the binder sets, sweep the pavement as needed to remove all loose aggregate. Use pickup sweepers in curbed areas and where aggregate shoulders do not exist. Do not sweep loose aggregate onto lawns, curbed areas, or intersections.

If the pavement cannot be swept within the 4-hour period due to problems associated with the stone moisture, binder, breaking, humidity, or other unknown, the Engineer may suspend the operation until the problem is resolved or more suitable conditions are obtained to maintain the 4-hour time frame for sweeping. Extend sweeping 1 foot (0.3 m) beyond the edge of the chip seal to help prevent migration of loose aggregate back onto the pavement. Do not re-use aggregate from a chip seal that is swept from the pavement or that is already loose off the pavement edge.

Perform a final sweeping immediately before application of permanent pavement markings or a fog seal, if a fog seal is required. Use pickup sweepers in curbed areas and where aggregate shoulders do not exist. Do not sweep loose aggregate onto lawns, curbed areas, or intersections. The Contractor is responsible for claims of damage to vehicles prior to the final sweeping.

Wait at least 24 hours before placing the second course of a double chip seal. Ensure the first course of a double chip seal meets the gradation of Table [422.02-1](#) Type A and the second course meets the gradation of Table [422.02-1](#) Type B. Ensure that the first course meets requirements of this specification and is cured and capable of withstanding construction traffic without damage. If loose aggregate is evident, sweep the first course again just prior to placing the second course. Correct damage to the underlying chip seal before placing the second course.

Place the longitudinal construction joint on a lane line or as directed by the Engineer. For double chip seal, place the longitudinal construction joint for the first course 6 inches (150 mm) off the centerline and place the second course so the longitudinal joint is at the centerline.

Before opening to traffic, post the roadway with “Loose Stone” signs and a “35 mph” speed plaque mounted below the sign. Ensure that signs conform to Item [614](#). Place these signs at a maximum of 0.5-mile (0.8 km) intervals. Remove the signs as directed by the Engineer.

On two-lane roads or pavements where traffic is maintained on a chip seal constructed that workday, provide a traffic control pilot vehicle operated at no more than 25 miles per hour (40 km/h) in the immediate work area.

Protect all utility castings, monument boxes, and other similar items using tarpaper or other approved material. Remove protection before sweeping and opening to traffic.

422.10 Quality Control

A. General. Use the methods described in this section to measure compliance. If test results exceed any of the identified quality control tolerances, stop placement and immediately notify the Engineer and [District Testing](#). Identify the cause of exceeding any of the identified quality control tolerances and document in detail the corrective action necessary to bring the deficiency into compliance. Obtain the Engineer’s approval before resuming work. Upon resuming work, take another sample and immediately provide the test results to the Engineer. If the tolerances are exceeded, stop the work. Do not resume work until approved by the Engineer and [District Testing](#). The Department can obtain samples of materials at any time. Aggregate samples can be taken from sources, on-hand stockpiles or the aggregate spreader box. Work can be stopped and materials can be rejected on the basis of poor Department test results. Any deficient materials found to be incorporated in the project will be evaluated per [Supplement 1102](#).

B. Binder. Within one hour of start of production obtain and label a binder sample from the distributor truck and give the sample to the Engineer the same day. Provide and sample the binder in one quart plastic containers with plastic screw tops. Label and retain one sample per each additional day for the Department. Take more samples when requested by the Engineer.

For the binder application rate, as determined by a yield check, do not exceed a tolerance of ±0.02 gallon per square yard (0.09 L/m²) from the established application rate.

C. Coarse Aggregate. At a minimum test one sample taken from the aggregate spreader box at production start and sample and test one sample from the aggregate spreader box randomly during the day. Provide the Engineer with a split sample that is a minimum of 22lbs (10,000g) from each day’s random sample for verification testing. An aggregate spreader box sample may be taken by laying a piece of suitable material under the spreader as it moves forward. Include additional testing when directed to sample and test by the Engineer. Sample and test aggregate according to [AASHTO T 2](#), [AASHTO T 248](#), and [Supplement 1004 \(AASHTO T 11\)](#) where required). Use washed gradations for determining the percent passing the No. 200 (75 µm) sieve. Submit daily test results to the Engineer prior to beginning the next day’s production. The Contractor may use additional tests. These may include dry gradations for control purposes but acceptance of on-hand aggregate will be based on washed gradations only. Reject and do not use aggregate creating dusting nuisance to the public on the project.

Reject truckloads of aggregate if water is seen coming from the truck bed.

Reject aggregate that does not meet the following requirements:

No. 4 (4.75 mm) sieve from JMF	±5.0%
No. 8 (2.36 mm) sieve from JMF	±3.0%
No. 200 (75 µm) sieve from JMF	±1.0%, 2.05% upper limit
Aggregate moisture content (by dry weight)	4.0% max. for aggregates with an Absorption > 2.0%, 3.0% max. for aggregates with an Absorption ≤ 2.0%

D. Documentation. Provide the Engineer a daily report with the following:

1. Project number, county, route.
2. Date, air temperature, pavement temperature, and humidity.
3. Binder temperature.
4. Beginning and ending stations.

5. Target binder and aggregate application rates.
6. Yield checks on binder (three per day, minimum).
7. Yield checks on aggregate (three per day, minimum).
8. Gradation, moisture content, and station (One sample from spreader box at production start, one random sample during the day and any other samples when directed by the Engineer).
9. Length, width, and total area.
10. Condition of “Loose Stone” signs with “35 mph” speed plaques.
11. Contractor representative’s signature.

Provide a bill of lading for binder and aggregate when requested or at project completion.

422.11 Acceptance. Inspect the chip seal daily for deficiencies resulting from poor workmanship, flushing, tracking from equipment, surface patterns, loss of stone, and sweeping. Inspect workmanship for untreated areas, minimum overlap on longitudinal joints, and minimum overlap on construction joints.

Verify the following for daily acceptance:

- A. Finished surface has no more than four tears or untreated areas greater than 1 inch (25 mm) wide and 4 inches (100 mm) long in any 120-square yard (100 m²) area.
- B. Joints appear neat and uniform without buildup, uncovered areas, or unsightly appearance.
- C. Longitudinal joints have less than a 2-inch (50 mm) overlap on the adjacent passes.
- D. Transverse joints have no more than 1/4-inch (6 mm) difference in elevation across the joint as measured with a 6-foot (2 m) straightedge.
- E. Chip seal edge is neat and uniform along the roadway lane, shoulder, and curb lines.
- F. Chip seal edge has no more than 2-inch (50 mm) variance in any 100 feet (30 m), along the roadway edge or shoulder.
- G. Typical stone chip embedment is 2/3 of typical stone chip height.

For project acceptance, the Contractor and Engineer will review the completed work 25 to 35 days after placement. The finished work must meet the following requirements:

Defect ^[1]	Severity
Surface patterns	Alternate lean and heavy lines (Ridges or streaking over the surface)
Bleeding/flushing	Distinctive appearance (Excess binder on surface)
Loss of cover aggregate	Patches or lines of aggregate lost from surface
[1] No more than 20% of any 120 square yard (100 m ²) area can contain any defect. The measurement of the 120 square yard (100 m ²) area begins at the start of the defect.	

Perform all corrective work to the satisfaction the Engineer.

422.12 Performance Review. Perform remedial actions for any defect exceeding the threshold levels in Table 422.12-1 for a period of two years from the date of substantial work complete as documented on the [Department’s Form C-85](#). Contact the Department to schedule a final performance review at least 60 days prior to the end performance review period. The Department will review the pavement before the end of the two year performance review period to determine if remedial action is required. The Department will issue the results in writing to the Contractor upon completion of the performance review.

Remedial Actions. Perform Remedial Actions between May 1 and September 1. If the Department determines that immediate repairs are necessary, due to a potential hazard to the traveling public, the Department will notify the Contractor and establish a date that all repairs are to be finished.

Provide construction traffic control when performing any work required or allowed by this specification during the warranty period in accordance with current Department policy and the [Ohio Manual of Uniform Traffic Control Devices](#). The Department will approve when the work is performed.

Provide approved materials, equipment, and labor to perform Remedial Actions at no additional cost to the Department. Prior to performing a Remedial Action, submit a Remedial Action plan to the DCA for approval. State in the plan when and how the Remedial Action will be performed; what material will be used; and how traffic will be controlled. Warrant Remedial Action work for the remainder of the warranty period.

Replace pavement markings or raised pavement markers (RPM) removed, obliterated, or damaged while performing a Remedial Action with pavement markings or RPMs equal approved products at no cost to the Department.

The Contractor is not responsible for pavement damage beyond the Contractor’s control (i.e., car fire, oil spill, structural issues, etc.).

TABLE 422.12-1

Each segment will be 300 ft (91 m) in length and the width of the lane. The beginning point of a 300 ft (91 m) segment starts at the beginning of any individual defect type. For loss of aggregate, the beginning point of a 300 ft (91 m) lane segment will exclude locations where vehicles turn from or onto other state highways.		
Defect	Severity	Threshold Levels
Surface Patterns	Severe - light and heavy lines over the pavement surface	40% of segment length affected, continuous or localized
Bleeding/ Flushing	Moderate - excess binder on surface (loss of stone/tire contact) not subject to wearing off quickly	5% of segment length affected continuously or total of 20% localized problems
Loss of Aggregate	Moderate - patches of aggregate loss	10% of segment length affected continuously or total of 20% localized problems

422.13 Method of Measurement. The Department will measure Single Chip Seal or Double Chip Seal by the number of square yards (square meters), completed and accepted in place. The Department will determine the width by measuring the actual width of the chip seal. The Department will determine the length along the centerline of each roadway or ramp.

The Department will measure the number of raised pavement markers removed if a Double Chip Seal is specified.

422.14 Basis of Payment. The Department will not pay for materials, equipment, or labor to make corrections.

The Department will pay for removal of existing pavement markings according to Items [643](#), [644](#), [645](#), [646](#), [647](#), and [648](#) as specified.

The cost of any removal and replacement, or protection of existing raised pavement markers on a single chip seal according to [422.06](#) is incidental to this item.

The Department will pay for removal of existing raised pavement markers on a Double Chip Seal application according to Item [621](#) Raised Pavement Markers Removed.

The Department will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
422	Square Yard (Square Meter)	Single Chip Seal, Type ___
422	Square Yard (Square Meter)	Double Chip Seal

702.16 Polymer Emulsified Binder. Material will meet specification requirements of the table below.

TABLE 702.16 POLYMER EMULSIFIED BINDER

Emulsion (AASHTO T 59)	Type A (b)	Type B (c,g)
Saybolt Furol Viscosity (g)	120-550 (50 °C)	20-100 (25 °C)
Storage stability, 24 hrs., % difference, max (a)	1	1
Demulsibility, 35 ml of 0.8% Dioctyl Sodium Sulf., min	50	60
Demulsibility, 35 ml of 0.02N, CaCl ₂ , %, min		60
Sieve test, (distilled water), %, max	0.1	0.05
Distillation to 177 °C, residue % solids (d)	66	63
Oil distillate, %, max	2	2
Distillation Residue		
Penetration, 100g, 5 sec @77 °F(25°C) AASHTO T 49	70-125	90-150
Softening point, ° C, min AASHTO T 53	57	
Solubility, %, min AASHTO T44 or ASTM D7553	97.5	97.5
Elastic Recovery, 50 °F (10° C), %, min AASHTO T 301 , (e),(f)	60	58

Notes:

- (a) After standing undisturbed for 24 hours, the surface will show no white, milky colored substance, but will be a smooth homogeneous color throughout.
- (b) CRS-2P, test within 20 days of project sampling. Limits for both certified source and project samples.
- (c) CRS-1P and HFRS-1P, test within 20 days of project sampling. Limits for both certified source and project samples.
- (d) See Supplement 1013.
- (e) Straight molds. Hold at test temperature for 90 minutes. Place in ductilometer and elongate 20 cm at 5 cm/min. Hold for 5 minutes and cut. After 1 hour retract the broken ends to touch and note elongation in cm (X) to the nearest 0.01cm. Percent Recovery = ((20-X)/20) x 100. Report elastic recovery to nearest 0.1%.
- (f) SBR, SBS, & SB
- (g) Minimum of 70 SFS for project acceptance