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R. BRENT SHANK
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PROPOSAL

Project: **A459.299 - Walker Road**

Guardrail Removal, HMA Wedge and Overlay, HMA Approach, Shoulder Gravel, Gravel Approach, New Guardrail and Pavement Markings

The Cheboygan County Road Commission will accept Bids until **9:00 a.m.** local time on **February 2, 2021** at: 5302 South Straits Highway, Indian River, MI 49749. Bid packages are available at the Cheboygan County Road Commission.

ALL BIDS WILL BE SEALED AND PLAINLY MARKED AS TO THE PROJECT AND PROJECT NUMBER.

The bidder has examined the plans, specification, special provisions and related materials in the proposal, as well as the location of the work described in the proposal for this project, and is fully informed as to the nature of the work and conditions relating to its performance and understands that the quantities shown are approximate only and are subject to either increase or decrease.

The bidder hereby proposes to furnish all necessary machinery, tools, apparatus and other means of construction, do all the work, furnish all the materials except as otherwise specified and, or each unit price, lump sum, or one each named in the itemized bid, to complete the work in strict conformity with the plans therefore and the entire proposal which is incorporated by reference in these pages, and in strict conformity with the requirements of the 2012 Standard Specifications for Construction, Michigan Department of Transportation and such other special provisions and supplemental specifications as may be part of the proposal for this project.

The bidder further proposes to do such extra work as may be authorized by the Cheboygan County Road Commission, prices for which are not included in the itemized bid. Compensation shall be made on the basis agreed upon before such extra work is begun.

THE BIDDER UNDERSTANDS AND AGREES THAT THE CHEBOYGAN COUNTY ROAD COMMISSION RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS; TO WAIVE IRREGULARITIES OR INFORMALITIES; AND NO CONTRACTUAL RELATIONSHIP SHALL EXIST BETWEEN THE BIDDER AND THE CHEBOYGAN COUNTY ROAD COMMISSION FOR THE WORK DESCRIBED HEREIN UNTIL SUCH TIME AS THE CONTRACT HAS BEEN FORMALLY EXECUTED BY BOTH THE BIDDER AND THE CHEBOYGAN COUNTY ROAD COMMISSION.

WALKER ROAD

Project Information:

Job Number: A459.299

Job Location: M-68 to M-33

Type of Work: Guardrail Removal, HMA Wedge and Overlay, HMA Approach, Shoulder Gravel, Gravel Approach, New Guardrail and Pavement Markings

Owner: Cheboygan County Road Commission

Project Dates:

Project Start Date: 10 Days after all Contracts are executed.

Project Completion Date: October 1, 2021 (All HMA Paving Items)
October 15, 2021 (All Project Items)

The project shall be completed within fifteen (15) days of starting date.

A pre-construction meeting will be scheduled by the Cheboygan County Road Commission prior to project start. All project submittals are to be submitted for review at this meeting.

Project Submittals:

The following shall be submitted to the Road Commission Engineer for approval prior to project start:

1. Material Source List (MDOT Form 501)
2. Progress Schedule (must be submitted within 5 days of Contract award)
3. See the Special Provision for Acceptance of HMA Mixtures on Township Projects for submittal requirements (must be submitted prior to paving).

HMA Paving:

HMA 4E1 shall have a design Asphalt Performance Grade of 58-28. See the attached Special Provision for Acceptance of HMA Mixture on Township Projects for HMA mixture specifications.

HMA Wedging:

Place HMA Wedging material as directed by the Engineer. Wedging shall be placed in a manner to achieve a 2% slope with a 2-inch maximum (per lift/course) depth of HMA at shoulder. Multiple lifts/courses are more than likely required to achieve 2% cross slope. HMA 4E1 shall be used for wedging. Contractor may use a different HMA mix with approval of the Engineer. Paid for as HMA, Wedging (Ton).

HMA Wedging Location shall be marked by Engineer.

Location: 0+50 L to 1+25 L

HMA Leveling Course:

Match existing width of 22', 0+45 to 16+19, this will consist of a leveling & wedging to achieve 2% cross slope. The goal is to achieve a ± 165 lbs/Syd.

HMA Overlay:

Match existing width of 22', 0+45 to 16+19. After Leveling Course is placed, the Contractor and Engineer will back calculate and agree on Top Course Application Rate from 95% remaining tonnage available.

HMA APPLICATION TABLE					
Label	Mix	Application Rate (Lbs/Syd)	Design Performance Grade	Comments	Pay Item
T	HMA, 4E1	165 *	58-28	Top Course	HMA, 4E1
L	HMA, 4E1	165 **	58-28	Leveling Course	HMA, 4E1
A	HMA, 4E1	220	58-28	Approach	HMA Approach
*	See HMA Leveling Course Note above HMA APPLICATION TABLE				
**	See HMA Overlay Note above HMA APPLICATION TABLE				
1	AWI = 220 for all HMA, 4E1 & HMA, 5E1				
2	Apply HMA Bond Coat at 0.10 gallons per square yard between paving courses or as directed by the Engineer. Paid for as part of other HMA items.				

Paving Joints:

The Contractor shall cold mill a 3" butt joint at the existing asphalt. The length of taper is 20' P.O.B & P.O.E., unless otherwise directed by the Engineer. The Engineer shall mark all locations. All labor,

equipment and materials necessary to construct the joint shall be paid for as **Pavt for Butt Joints, Rem (Syd)**.

Locations for the Paving Joint:

Station	Location	Size (L x W)
0+45	P.O.B.	20' x Variable width (80 Syd)
16+19	P.O.E.	20' x 22' (50 Syd)

All Millings shall spread evenly adjacent to 15' wide Park and Ride apron prior to placing Approach, CL II material, unless otherwise directed by the Engineer.

Park and Ride Area:

Park and Ride Area on the east side of Walker Road is from Station 15+00 to Station 16+10. A 15' wide paved apron (250 Syd area) from the edge of existing pavement. It is anticipated that the Contractor shall grade area prior to paving. 50 Ton of Approach, CL II material to be used to blend in area to new pavement.

Gravel Shoulders:

Contractor shall place Shoulder, CL II material 4.0 feet wide or as specified by the engineer. When placing shoulder aggregate, material shall be placed directly on the shoulder. Shoulder material may not be placed on the asphalt. Shoulder material shall be flushed to the edge of pavement and blended to the existing shoulder on the outside. Shoulders shall be wheel rolled with heavy equipment for density. The Contractor is responsible to ensure positive drainage on gravel shoulders. The Contractor will be responsible for repairing, at the Contractor's expense, standing water or other drainage related issues.

Shoulder, CL II material shall be a Dense-Graded Aggregate, 23A.

The Contractor shall provide a scale ticket for each load delivered to the job. All scale tickets shall meet MDOT requirements. The Contractor shall provide current scale certification to the Road Commission prior to hauling material. Loader scales will not be accepted. Any exceptions shall be noted on the bid sheet for the project.

The Contractor shall schedule shoulder material placement in a timely manner to reduce the time that an edge drop off exists. The Contractor shall place shoulder material within 7 calendar days of paving completion. If the Contractor fails to place shoulder material, the Road Commission will levy liquidated damages of \$200.00 per calendar day that the edge drop off exists.

Guardrail:

Guardrail post shall be 8' in length. Curved guardrail must be verified by the contractor before installation to insure proper radius. All removed guardrail material becomes the property of the Cheboygan County Road Commission and shall be piled neatly in the Park and Ride Area.

Pavement Markings:

All pavement markings, shapes and dimensions shall conform with the Michigan Department of Transportation Pavement Marking Typicals VIII-900E to VII-990E, unless otherwise indicated.

Pavement Markings shall be placed in accordance with the 2011 Michigan Manual of Uniform Traffic Control Devices. All zoning shall be the responsibility of the contractor. Payment for zoning shall be included in the items for pavement markings.

Traffic Control:

Traffic shall be Detoured during the project working hours. Traffic shall be open to two way traffic shall be open during non-working hours. The Contractor shall coordinate operations with contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA).

The Construction Influence Area shall include the right-of-way of the following roadways within the approximate limits described below:

Walker Road from State Highway M-33 to State Highway M-68.

At no time may Traffic Control Stop and Hold traffic, including loaded & unloaded asphalt trucks on the new HMA surface.

Detour Route shall be signed to detour traffic from the M-33/Walker Road intersection to the M-68/Walker Road intersection. Detour shall be deactivated during non-working hours.

Advanced Warning signs shall be in place before any work begins.

Traffic will be maintained by the Contractor in accordance with the 2011 Michigan Manual of Uniform Traffic Control Devices.

Payment for all traffic control, signing and traffic control items shall be paid for as **Traffic Control**.

General Note:

All work shall be done in accordance with the Michigan Department of Transportation 2012 Standard Specification for Construction. All materials shall meet the requirements of the Michigan Department of Transportation Materials Source Guide.

For protection of underground utilities, and in conformance with Public act 174 of 2014, the contractor shall call MISS DIG a minimum of three full working days, excluding Saturdays, Sundays and Holidays, prior to beginning work in areas where public utilities have not been previously located. All MISS DIG participating members will be thus routinely notified. This does not relieve the Contractor from notifying utility owners who may not participate in the MISS DIG alert system.

Insurance Requirements:

The Contractor shall furnish proof of general liability insurance in amounts not less than \$1,000,000 each occurrence and general aggregate, proof of automobile liability in amounts not less than \$1,000,000 combined single limit for each accident, bodily injury per accident, and property damage per accident, and in amount not less than \$500,000 for bodily injury per person. Such proof of insurance shall include a valid certificate of insurance demonstrating that the Cheboygan County Road Commission is additional insured party on the policy. Such insurance shall cover a period not less than the term of the project and shall provide that it cannot be cancelled without 30 days advanced written notice to the Cheboygan County Road Commission, by certified mail, first class, return receipt requested. The Contract will be invalid if insurance expires during the authorized period of work described.

In addition to any liability or obligation by the Contractor that may otherwise exist, Contractor shall, to the fullest extent permitted by law, indemnify and hold harmless the Cheboygan County Road Commission and its commissioners, officers, agents and employees from and against any and all claims, actions, proceedings, liabilities, losses, and damages thereof, and any and all costs and expenses, including legal fees, associated therewith which the Cheboygan County Road Commission may sustain by reason of claims for or allegations of negligence or violation of the terms and conditions of the Contract, arising out of the work which is subject of the Contract.

Bonding Requirements:

The successful Contractor shall furnish a performance bond equal to the contract price as assurance for faithful contract performance.

The Contractor shall also furnish a separate **surety bond** equal to the contract price as security for payment to all persons performing labor and furnishing materials in connection with this contract. The Contractor shall pay the premium for all bonds.

The bonds must meet requirements of Michigan Law.

Bonds shall be submitted and approved before contract execution.

Liquidated Damages:

Liquidated damages will be assessed for failure to complete this project by the specified date, unless waived by the Project Engineer. Damages will be assessed for the total contract cost for all awarded items, as shown in table 108-1 of section 108 of the above referenced MDOT specifications.

Soil Erosion and Sediment Control (SESC):

The Contractor shall implement and maintain the soil erosion control measures as shown on the plans before and at all times during construction of this project. All SESC measures shall conform to current MDOT standards, manufacture guidelines and established best practices.

Daily inspections shall be made by the Contractor; periodic inspections shall be made by the Engineer to determine the effectiveness of the SESC measures. Any required corrections shall be made without delay.

All permanent erosion control measures shall be permanently maintained by the Cheboygan County Road Commission.

Stations:

0+00		Centerline M-33
0+45		P.O.B., Existing Pavement Joint, Butt Joint (Variable width by 20' long) (80 Syd)
0+45	R	Guardrail tie in point
0+47	L	Guardrail tie in point
1+38	R	End of Existing Guardrail
1+61	L	End of Existing Guardrail
3+11	L	End of New Guardrail
3+13	R	End of New Guardrail
15+00	L	Edge of Park and Ride Area, taper into a 15' wide apron
16+10	L	Edge of Park and Ride Area, taper into a 15' wide apron
16+19		P.O.E., Existing Pavement Joint, Butt Joint (22' wide by 20' Long) (50 Syd)
16+83		Centerline M-68

Project Quantities:

Mobilization, 10% Max	1	LSUM
Guardrail, Rem	188	Ft
Approach, CI II	50	Ton
Shoulder, CI II	250	Ton
Pavt for Butt Joints, Rem	130	Syd
HMA, 4E1 Wedging	25	Ton
HMA, 4E1	762	Ton
HMA Approach	40	Ton
Guardrail, Type B	350	Ft
Guardrail, Curved, Type B	63	Ft
Guardrail Approach Terminal, Type 2B	2	Ea
Guardrail Reflector	22	Ea
Pavt. Mrkg, Waterborne, 4 inch, yellow	3200	Ft
Traffic Control	1	LSUM

Bid Sheet

Board of Cheboygan County Road Commissioners
5302 South Straits Highway
Indian River, MI 49749

Gentlemen:

The undersigned proposes to furnish any and all materials, labor, and equipment necessary for the HMA Overlay of Walker Road as spelled out in the "Invitation to Bid" for the prices below.

The Cheboygan County Road Commission reserves the right to reject any and/or all bids based on what is in the best interest of Cheboygan County.

Contractor Name: _____

Project: A459.299 Walker Road

Item	Quantity	Unit	Unit Price	Total
Mobilization, 10% Max	1	LSUM		
Guardrail, Rem	188	Ft		
Approach, CI II	50	Ton		
Shoulder, CI II	250	Ton		
Pavt for Butt Joints, Rem	130	Syd		
HMA, 4E1 Wedging	25	Ton		
HMA, 4E1	762	Ton		
HMA Approach	40	Ton		
Guardrail, Type B	350	Ft		
Guardrail, Curved, Type B	63	Ft		
Guardrail Approach Terminal, Type 2B	2	Ea		
Guardrail Reflector	22	Ea		
Pavt Mrkg, Waterborne, 4 inch, Yellow	3200	Ft		
Traffic Control	1	LSUM		
TOTAL PROJECT COST ESTIMATE =				

Bidder: _____

Signature: _____

Printed Name: _____

Title: _____

Address: _____

Phone No.: _____

Date: _____

Email: _____

Cheboygan County Road Commission

Special Provision

For

Acceptance of HMA Mixtures on County/Township Projects

CCRC:RBS

01/09/18

a) **Description**

This Special Provision provides acceptance-testing requirements for use on this project. The HMA mixture shall be provided to meet the requirements of the standard specifications for construct except where modified herein. The HMA mixture quality assurance and acceptance shall conform to Section 501 of the 2012 Michigan Department of Transportation Standard Specifications for Construction except where modified herein. The MDOT HMA Production Manual, current edition, applies to this work.

b) **Submittals**

The contractor shall submit the following:

1. Job Mix Formula (MDOT Form 1911 or equivalent) for the project for review and approval by the Engineer. The Contractor shall not place any HMA without an approved JMF. Below are specific values that are required on the JMF (in addition to the normal requirements).
 - i. Fine Aggregate Angularity
 - ii. RAP Tiering based on JMF values
 - iii. Fines to Asphalt Ratio (based on Effective Asphalt Content)
 - iv. Soft Particle Percentage of each JMF Aggregate Type
2. Quality Control Plan.
3. A copy of all Contractor Quality Control Tests submitted within 7 working days of projection completion.
4. A copy of the Bill of Lading or Delivery Ticket for the Asphalt Binder for the project. The Bill of Lading must include the type of material that was previously hauled in the delivery tank.

c) **Materials**

Aggregates, mineral filler (if required), and asphalt binder shall be combined as necessary to produce a mixture proportioned within the master gradation limits and meeting the uniformity tolerances listed Table 1 and the quality assurance testing tolerances in Table 2 of this special provision. The master gradation range is to be used for establishing mix design only. Topsoil, clay or loam shall not be added to aggregates used in plant produced HMA mixtures.

The Maximum Percentage of Soft Particles for any given HMA mixture shall be 5%.

Table A: HMA Mixture Targets and Parameters

HMA Mix Type	VMA Minimum on any given Test (a,c)	VMA Target (c)	Asphalt Binder Content Minimum on JMF	Asphalt Binder Content Minimum on any given Test (a)	Fines to Asphalt Ratio Maximum on JMF (b)
4E1	14.0	Based on mix design parameter, the contractor shall establish & state their VMA Target on their mix design JMF, and shall adhere to the VMA Min. requirements	5.80	5.50	1.10
5E1	15.0		6.10	5.80	1.10
Ultra-Thin	15.0		6.00	5.70	1.20

a. The HMA parameter minimum is per any given QC/QA test, regardless of Tolerances listed in Table 2 of this Special Provision.
 b. Value based on Pbe (Effective Asphalt Percent) for each given mix and JMF.
 c. VMA values are based on the Gsb (Bulk Specific Gravity) of the given HMA mixture not the Gse (Effective Specific Gravity).

Table B: HMA Mixture Targets and Parameters Ultra-Thin Mix

Superpave Air Voids (%)	4.5
Superpave Gyration	35
Fine Aggregate Angularity (Min.)	40.0
Percent Crush (Min. %)	50.0
Aggregate Wear Index (AWI)	220
Sieve Size	Total % Passing
1/2 inch	100
3/8 inch	99-100
No. 4	75-95
No. 8	55-75
No.30	25-45
No. 200	3-8

d) **Asphalt Binder**

Liquid Asphalt Binder shall be a Performance Graded (PG) binder as specified in the bid documents and/or approved by the Road Commission.

e) **Air Voids**

Design Air Voids shall be 4.0% and shall be regressed to 3.0% in production **by the addition of virgin liquid asphalt (4E1 and 5E1).**

f) **Recycled Asphalt Materials**

Recycled Asphalt Pavement (RAP) is allowed in the HMA mixtures subject to the following requirements. The method for determining the binder range in HMA mixtures incorporating RAP is divided into two categories designated Tier 1 and Tier 2. Each tier has a range of percentages that represent the contribution of the RAP toward the total binder replacement. Binder replacement will be determined by weight. ***The use of Reclaimed Asphalt Pavement (RAP) shall be limited to Tier 1 (0% to 17%) RAP binder by weight of the total binder in the mixture, for all mixes (4E1, 5E1, and Ultra-Thin).***

Recycled Asphalt Shingles (RAS) will not be allowed in the HMA Mixtures.

Tier 1 – 0.0% to 17.0% RAP binder by weight of the total binder in the mixture

No binder grade adjustment is required to compensate for the stiffness of the asphalt binder in the RAP.

g) Construction

After the Job Mix Formula is established, the aggregate gradation of the HMA mixture furnished for the work shall be maintained within the Range 1 uniformity tolerance limits permitted for the job-mix-formula specified in Table 1. However, if deviations are predominantly either below or above the job-mix-formula, the Engineer may order alterations in the plant to bring the mixture to the job-mix-formula. If two consecutive aggregate gradations on one sieve as determined by the field tests are outside Range 1 but within Range 2 tolerance limits, the Contractor shall suspend all operations. Contract time will continue during these times when the plant is down. Before resuming any production, the Contractor shall propose, for the Engineer's approval, all necessary alterations to the materials or plant so that the job-mix-formula can be maintained. The Engineer, after evaluating for effects on AWI and mix design properties, will approve or disapprove such alterations.

Random Liquid Asphalt Binder samples will be witnessed by the Engineer or Consulting Firm. The Engineer reserves the right to test any or all samples taken.

The crushed particle content of the aggregate used in the HMA mixture shall not be more than 10 percentage points above or below the crushed particle content used in the job-mix-formula nor less than the minimum specified for the aggregate in the project documents.

Quality Assurance and Acceptance testing will be as follows:

1. Asphalt Mixture Sampling

Acceptance sampling and testing will be performed by the Engineer using the sampling method and testing option agreed upon by the Engineer and Contractor. Each day of production, random samples will be obtained for each mix type. Acceptance testing will be performed at a frequency specified by the Engineer.

For each given day of production, if the daily mix tonnage per HMA mix type is under 500 tons, the Engineer reserves the right to test one sample and obtain a second sample for future testing if necessary. If the daily mix tonnage per HMA mix type is over 500 tons, the Engineer reserves the right to test one sample. If the first sample meets the Range 1 tolerances in Table 1 and Table 2, the Engineer can obtain a second sample and perform any of the following actions:

- a) Perform Full Quality Assurance testing
- b) Perform Volumetric Testing Only (Ignition, Extracted, or Calculated AC/Gmm, Air Voids, VMA)
- c) Retain custody of the sample for future testing if necessary

2. Asphalt Binder Sampling

The Contractor shall obtain the asphalt binder sample, correctly label the sample container, and complete a Sample Identification (Bituminous Material Form 1923B). The form must be filled out correctly and completely, and signed before the sample is given to the Engineer. The daily asphalt binder sample must be taken from a sampling spigot located on the pipeline supplying asphalt binder to the plant, in a position between the asphalt binder pump and the point where the asphalt binder is introduced to the aggregate mixture. Personnel safety is critical in selection the position of the sampling spigot. Give the binder sample and completed Form 1923B to the Engineer.

Daily Asphalt Binder Sample are to be in 1 pint (16 ounce), slip top, seamless ointment tins. The tin must be at least three quarters full. All containers must be labeled in a legible format with the following information provided:

- a. Project Name
- b. Binder Grade
- c. Binder Supplier Certification Number
- d. Supplier Name, City, and State
- e. Date Sampled
- f. Mixture Type

The Engineer may request to witness the sampling of the asphalt binder upon visit to the HMA Plant. The Engineer will complete the 1923B Form for the witness sample. The witness sample will be recorded as the daily asphalt binder sample. Any other asphalt binder samples from that same day will be discarded.

The Engineer may request a copy of the MDOT Binder Certification Documents. These copies must be presented to the Engineer when the respective daily binder samples and the 1923B Forms are picked up at the plant. The Engineer will review these documents and communicate any problems that may arise.

3. Mixture Testing

Mixture samples will be tested to verify gradation, binder content, and volumetric properties per Table 1 and Table 2 listed below.

If the Engineer elects not to perform Quality Assurance testing on a given day or a given project. The Contractor is required to still perform testing in accordance with Table 1 and Table 2 below. The Contractor's Quality Control test results shall be sent to the Engineer within 2 working days of each day's productions for a given HMA mixture.

Table 1: Quality Assurance/Control Tolerance Limits for HMA Mixtures

Parameter	Action Limits (Range 1)	Suspension Limits (Range 2)
% Passing the #8 and Larger Sieves	+/- 5.0%	+/- 8.0%
% Passing the #30 Sieve	+/- 4.0%	+/- 6.0%
% Passing #200 Sieve	+/- 1.0%	+/- 2.0%

Table 2: Quality Assurance/Control Testing Tolerance (+/-) from JMF or Target Values

Parameter	Action Limits (Range 1)	Suspension Limits (Range 2)
Binder Content (a)	0.30% (a)	0.50% (a)
Maximum Specific Gravity (Gmm)	0.013	0.020
Voids in Mineral Aggregate VMA (a,b)	0.75% (a,b)	0.80% (a,b)
Air Voids (c)	0.60%	0.90%
Fines to Effective Asphalt Ratio	0.65-1.20	0.60-1.25
a. Refer to minimum parameters in Table A of this special provision. b. These given limits are (+/-) from given targets in Table A of this special provision. c. Limits are (+/-) from JMF/Target Values listed in Section e. and Table B of this special provision.		

4. Density

Pavement density will be measured by the Engineer, with a Nuclear Density Gauge, using the Gmm from the JMF for the density control target. The in-place density of the HMA mixture shall be at least 92.0% of the density control target. In-place density will be calculated by averaging four QA density test locations. Test locations will not be taken within 12 inches of any pavement edges or pavement joints.

h) Rejected Materials

1. Gradation

Action Limits - Range of values established in Table 1 – Quality Assurance/Control Tolerance Limits for HMA Mixtures. If exceeded on two consecutive tests, Contractor is required to take corrective action to bring the mixture produced into conformance with the specifications.

Suspension Limits – Range of values established in Table 1 – Quality Assurance/Control Tolerance Limits for HMA Mixtures. If exceeded on a single test, Contractor is required to suspend operations and determine, document, and correct the cause before resuming production. Prior to resuming production, the Engineer must be notified of the findings and approve correction action prior to resuming production.

2. Asphalt Binder

If a liquid asphalt binder sample does not meet the required specification, the mix produced from the point of the last liquid asphalt binder sample meeting specification to the failed sample shall be considered defective and shall be replaced at the sole expense of the Contractor.

3. Volumetric Properties

The acceptable tolerance for Binder Content, Gmm, VMA, Air Voids, and Fines to Pbe are listed in Table 2 above. Any HMA Mixture produced outside of these tolerances or any HMA Mixture that does not meet the requirements listed in the sub notes of Table 2 above will be subject to a negative adjustment or rejected. The resulting penalty will be a negative adjustment of 10% to 50% or remove/replace, to be determined by the Engineer.

4. Pavement Density

A negative 10% adjustment in the HMA Mixture contract price will be imposed if the pavement density (average of all gauge readings) is less than 92%, but equal to or greater than 91%; or if 2 or more readings are less than 91%.

A negative 25% adjustment in the HMA Mixture contract price will be imposed if the pavement density (average of all gauge readings) is less than 91%, but equal to or greater than 90%; or if 2 or more readings are less than 90%.

If the average density is less than 90% (for all gauge readings), the Contractor shall remove and replace the pavement at no cost to the Owner.