

**Mason Public Schools
400 S. Cedar St., Mason, MI 48854**

**Reconstruction of the South Car Parking
at Mason Middle School, 235 Temple St., Mason, MI 48854**

AND

**Reconstruction of a Walking Path at North Aurelius Elementary School, 115 N. Aurelius Road,
Mason, MI 48854**

Each bidder shall be required to file a 5% bid security. Mason Public Schools has the right to accept or reject any and all bids. Each bid shall be accompanied by a sworn statement disclosing any familial relationship that exist between the owner or any employee of the bidder and any member of the board, or the superintendent of the school district. Proposals will not be considered without this document.

All bids shall be accompanied by Affidavit of Compliance – Iran Economic Sanctions Act in compliance with “Iran linked business” within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012. The Board of Education shall not accept a bid that does not include the Affidavit of Compliance. As provided by law, the Board of Education may give preference to bidders from Michigan-based businesses.

SCOPE OF WORK AND SPECIFICATIONS

Request for a proposal to reconstruct the South Car Parking at the Mason Middle School, 235 Temple St., Mason, MI 48854. And, Request for a proposal to reconstruct a walking path at Aurelius Elementary School, 115 N. Aurelius Rd., Mason MI 48854

The undersigned bidder has examined the specifications and the location of the work described in the proposal for this project and is fully informed as to the nature of the work and the conditions at the existing site.

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, for the lump-sum and/or unit prices indicated, to complete the work in strict accordance with the specifications included in this proposal and in strict conformity with the requirements of the current Standard Specifications for Construction, Michigan Department of Transportation, and such other special provisions, and other specifications as included in this proposal.

The successful bidder must obtain all permits required from the City of Mason and Ingham County. Proof of liability insurance is also required.

The undersigned further proposes to do such extra work as may be authorized by the owner. Compensation shall be made on the basis agreed upon before such extra work is begun.

IA. SCOPE OF WORK – MASON MIDDLE SCHOOL

It is the intent of this project to cold mill the existing asphalt pavement, and aggregate base, to a depth sufficient to allow the placement of five inches of new asphalt in the Parking Lot, as indicated on the enclosed satellite image. The existing pavement consists of three and three quarter, to eight inches of asphalt on a good quality aggregate base. Once the above work is completed, the contractor will proof roll the aggregate base with a loaded truck, which meets the approval of the engineer, to determine if there are any soft or unstable areas. If any of these conditions are encountered, the contractor will do subgrade undercutting, type II as indicated by the engineer. In these undercut areas, drainable fill shall be used up to the bottom of the existing aggregate base. Aggregate base required to complete the undercut areas shall be acceptable to the engineer. This item shall be included by the cubic yard.

Four-inch, geotextile wrapped, underdrains shall be installed as directed, bedded in pea stone, and connected to the existing drainage structures. The actual placement of these underdrains will be determined in the field, by the engineer, and the costs associated with tapping into these structures, as well as costs associated with the removal of excavated spoils, shall be incidental to the under drain pay item. .

Throughout the duration of this project, the contractor shall have available a water truck, capable of sprinkling the grade, and maintaining the moisture content of the aggregate base to within two percent on either side of the optimum moisture content. The costs associated with this shall be incidental to other items. Drainage structures shall be adjusted as directed, with the intent of salvaging and re-utilizing the existing cast iron frames and grates.

Once the preceding work has been completed, asphalt pavement will be placed. The new asphalt pavement shall consist of three- and one-half inches of 3C Modified base course, apply a bond coat (SS-1H), followed by one- and one-half inches of 5C Modified surface course.

Minimum traffic control shall provide for safe ingress and egress, and protection of residents, staff, faculty parents, students, and emergency vehicles, from the construction operation. A traffic control plan provided by the contractor shall be approved by the engineer. Temporary ramps, as required, shall be incidental to other work items.

All materials not incorporated into the work will be removed from the site; any areas that are disturbed by the construction will be repaired to a "like" condition. Payment for this work will be included in other items of work.

When aggregate base is accepted by Glen the Engineer, the Contractor will install three- and one-half inches of 3C Modified Hot Mix Asphalt Base, a bond coat, and one- and one-half inches of 5C Modified Hot Mix Asphalt Surface. Curb and gutter shall be removed and replaced, as directed to match the existing. Existing drainage structures shall be adjusted as necessary, and shall be paid for individually.

Contractor is responsible for all layout and grade staking and shall be considered incidental to other items of work.

All permits will be obtained by the Contractor.

Minimum traffic control shall provide for safe ingress and egress, and protection of employees from the construction operation. A traffic control plan provided by the Contractor shall be approved by Glen Una's Engineer and Site Manager(s).

All materials not incorporated into the work will be removed from the site; any areas that are disturbed by the construction will be repaired to a "like" condition. Payment for this work will be included in other items of work.

IA. SCOPE OF WORK – NORTH AURELIUS ELEMENTARY WALKING PATH

It is the intent of this project to remove the existing 5 ft wide asphalt walking path, and replace it with six inches of new aggregate base, and three inches of new asphalt. The existing pavement consists of two- and one-half inches of asphalt placed directly on soil. The aggregate base in the new path will be 11ft in width, and the new asphalt shall be 10ft in width. Once the earth work is completed, the contractor will proof roll the base with a loaded truck, which meets the approval of the engineer, to determine if there are any soft or unstable areas. If any of these conditions are encountered, the contractor will do subgrade undercutting, type II as indicated by the engineer. In these undercut areas, drainable fill shall be used up to the bottom of the base. This item shall be included by the cubic yard.

Four-inch, geotextile wrapped, underdrains shall be installed as directed, bedded in pea stone, and connected to the existing drainage structures. The actual placement of these underdrains will be determined in the field, by the engineer, and the costs associated with tapping into these structures, as well as costs associated with the removal of excavated spoils, shall be incidental to the under drain pay item.

New 6-inch aggregate shall be MDOT 21AA LIMESTONE. Crushed concrete will not be acceptable.

Once the preceding work has been completed, asphalt pavement will be placed. The new asphalt pavement shall consist of three inches of 13A Modified base placed in a single course.

In the walking path only, the average in-place density of the mixture shall be a minimum of 92 percent of theoretical maximum density.

Minimum traffic control shall provide for safe ingress and egress, and protection of residents, staff, faculty parents, students, and emergency vehicles, from the construction operation. A traffic control plan provided by the contractor shall be approved by the engineer. Temporary ramps, as required, shall be incidental to other work items.

All materials not incorporated into the work will be removed from the site; any areas that are disturbed by the construction will be repaired to a "like" condition. Payment for this work will be included in other items of work..

Contractor is responsible for all layout and grade staking and shall be considered incidental to other items of work.

All permits will be obtained by the Contractor.

Bids due **April 5, 11:30am** at Mason Public Schools, 201 W. Ash Street, Suite 2A Mason, Michigan, 48854, Attention: Kevin Doty, Operations Director, where they will be publicly read aloud.

II. TERMINOLOGY

Quality Control (QC) - All activities that have to do with making the quality of a product what it should be, including training, materials sampling and testing, project oversight, and documentation.

Quality Assurance (QA) - All activities that have to do with making sure the quality of a product is what it should be, including materials sampling and testing, construction inspection, and review of contractor quality control documentation.

Bituminous Mix Design - The selection and proportioning of aggregate(s), mineral filler (if required), reclaimed asphalt pavement (RAP) and asphalt binder such that the specified mixture design criteria are met. Laboratory evaluation is required to determine if the stated mix design complies with specifications.

Job Mix Formula (JMF) - A bituminous mixture for a specific project. This may include adjustments to the mix design to optimize the field application.

Target Value - A JMF parameter value that may be adjusted, if approved by the engineer, to account for changes in the physical properties of the mixture.

JMF Adjustment - The contractor may propose an adjustment to the JMF based upon QC and/or QA test results. The proposed JMF must meet the requirements of the 2003 Standard Specifications for Construction. When approved by the engineer, a JMF adjustment may be applied retroactively to one lot, for parameters with target values.

Voids in Mineral Aggregate (VMA) - The volume of void space between the aggregate particles of a compacted paving mixture that includes the air voids and the asphalt binder, including the absorbed asphalt binder, expressed as a percent of the total volume of mixture.

Effective Specific Gravity (Gse) - The ratio of the oven dry weight in air of a unit volume of an aggregate (excluding voids permeable to asphalt) at a stated temperature to the weight of an equal volume of water at a stated temperature.

Bulk Specific Gravity of Aggregate (Gsb) - The ratio of the oven dry weight in air of a unit volume of an aggregate at a stated temperature to the weight of an equal volume of water at a stated temperature.

Maximum Specific Gravity of Mixture (Gmm) - The ratio of the weight in air of a unit volume of an uncompacted bituminous paving mixture at a stated temperature to the weight of an equal volume of water at the same temperature.

Lot - Bituminous mixture produced and placed under this special provision is evaluated on a lot-by-lot basis. A lot is made up of a discrete tonnage of one mixture. Each lot is made up of three sublots. These sublots will be of approximately equal size up to a maximum of 2000 metric tons. The subplot size shall be approved by the engineer prior to the start of production. The contractor

may request a change in the subplot size during production based upon the contractor's ability to produce a mixture that meets the specification contained within the contract documents, and upon approval of the engineer.

If only one or two sublots are included in a lot at the end of production, they will be combined with the previous lot using the same mix, and this combined lot will be evaluated based upon all subplot samples.

Lot Average Test Result - The average of all subplot QA test results, for a specific parameter, for the lot. Test results for any subplot removed from the project will not be used in calculating a lot average. However, the replacement material will be tested and the results included in the lot average.

Process Quality Control Targets - These targets are established by the contractor based upon initial production lot test results (and from any approved trial run) for air voids, VMA, asphalt binder content and Gmm. QC tolerances will be applied to these established targets to determine the need for production changes, including stopping production, to control the quality of the product. Process quality control targets must be reported to the engineer prior to the end of placement of the second lot.

Rounding of Numbers - Rounding of numerical data will follow ASTM E 29-93a, as described in the MDOT Bituminous QC/QA Procedures Manual of Field Testing.

Random Sampling - Selection of QA samples (bituminous mixture and density) and verification samples will be by a random process managed by the engineer. The engineer will use a random number generating calculator to determine the locations of each density core and mixture sample.

The contractor will be given the opportunity to observe the sampling process. However, the random numbers selected and the sampling locations will not be revealed to the contractor until the time of sampling in order to avoid bias in the random sampling process.

III. SAMPLING AND TESTING

The following sampling and testing procedures are to be followed in completing this work.

ASTM D 1559-89 Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus (Section 4.5).

ASTM D 2172 Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures.

ASTM D 2041 Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.

ASTM D 2726 Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens.

ASTM C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates.

ASTM C 117 Test Method for Materials Finer Than 75- μ m (no. 200) Sieve in Mineral Aggregates by Washing.

ASTM E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications.

MTM (Michigan Test Method) 311 Determining Aggregate Gradation for Bituminous Mixture.

MTM 117 Determining Percentage of Crushed Particles in Aggregates.

MTM 118 Measuring Fine Aggregate Angularity.

MTM 110 Determining Deleterious and Objectionable Particles in Aggregates.

MTM 319 Determination of Asphalt Content from Asphalt Paving Mixtures by the Ignition Method.

MTM 313 Sampling Bituminous Mixtures.

Equipment. All equipment requirements to perform these sampling and testing procedures shall apply.

IV. QUALITY CONTROL (CONTRACTOR)

a. Bituminous Mixture: The contractor will take random samples of loose mixture at least every 400 tons of mixture, or a sampling frequency agreed upon with the engineer. The engineer will be provided a split sample of all QC samples taken by the contractor. This sample may be taken anywhere in the production process, except behind the paver. The contractor will be responsible for establishing process quality control targets for air voids, asphalt binder content, aggregate gradation, Gmm, obtaining QC samples, and conducting QC testing in accordance with the contractor's quality control plan (QCP).

Each QC sample shall be identified to allow all test reports to be linked to a specific lot or subplot within the project.

The contractor shall maintain daily control charts and have them available for review at the plant at all times. Copies of these control charts shall be provided to the engineer if requested. All test results shall be plotted and used in quality control decisions. When corrective action is necessary, the contractor shall notify the engineer in writing of the specific action taken, if it required a JMF adjustment.

b. In-place Density: The contractor will have a density gage available for quality control testing during the compaction process. The contractor will also have the capability to take 6" cores from random locations throughout the paved area for acceptance testing. The contractor may take up to three informational cores from each mixture type, to help correlate the density gage. Minimum in-place density shall average 95 percent of theoretical maximum density, Gmm.

V. QUALITY ASSURANCE (ENGINEER)

a. Bituminous Mixture: The engineer may collect all bituminous mixture (loose) quality assurance samples and provide the contractor with splits of these samples. If the criteria for the verification procedure are satisfied, the contractor's test results may be incorporated into the acceptance and payment decisions for the mixture. During the course of production, the engineer may acquire random samples at any point in the production process. These samples may be tested to determine if the mixture, the aggregate and the binder meet all of the specification requirements contained in the contract document. As the samples are collected, the engineer may assign an alphanumeric identifier to the sample and split, which can be used to trace the test results to the lot and subplot. This alphanumeric identifier must be included on all engineer test reports associated with that sample. An example is 4-2-A, which might designate the engineer's split (A) of the sample from subplot 2 of lot 4 on a project.

A minimum 16,000 gram sample may be taken. The sample will be divided equally for contractor and engineer testing. The following tests may be conducted by the engineer on the QA sample splits.

1. Maximum Specific Gravity, Gmm (ASTM D 2041)
2. Bulk Compacted Density (ASTM D 1559, paragraph 4.5)
3. Air Voids (calculated)
4. Voids in Mineral Aggregate, VMA (calculated)
5. Composition of the Mixture - Asphalt binder content based on calculated value using subplot maximum specific gravity (Gmm) and current JMF effective specific gravity (Gse). The retained Gmm sample may be used for gradation (ASTM C 136, C 117) and crushed particle content (MTM 117) from extracted (ASTM D 2172) or incinerated (MTM 319) aggregate, or from MTM 311.

b. In-Place Density: The engineer may identify random core sample locations for each subplot based on longitudinal and transverse measurements. The engineer will mark each core location with a paint dot, which represents the center of the core. The contractor shall drill a 6" core sample at each core location. The contractor shall notify the engineer sufficiently in advance of coring to ensure that a representative can be present to witness the coring and take possession of the core. The core density shall be calculated using the TMD from the test data obtained from that day's sample. The core samples shall be taken after final rolling.

As an option, when mutually agreed to by the engineer and contractor, the core samples may be waived and the density gage will be used for acceptance testing.

Core samples shall not be damaged during removal from the pavement. If, for any reason, a core is damaged or determined not to be representative at the time of coring, the engineer will evaluate and document the problem and determine if re-coring is necessary.

All previous pavement, base aggregate or bond coat material shall be sawed off the bottom of the core samples.

The core holes shall be filled with hot mixture and thoroughly compacted as part of the coring operation. The method of filling holes and obtaining compaction shall be agreed upon prior to production. Pavement density acceptance testing will be completed within one (1) work day

after the cores were taken. Testing will be in accordance with ASTM D 2726. The test results on the compacted bituminous mixture may be used as a basis of acceptance and payment.

VI. VERIFICATION OF QUALITY CONTROL TEST

a. General Procedure: The engineer will review the contractor's sampling and testing procedures, their test results and any engineer quality assurance test results. If, in the opinion of the engineer, sampling and testing procedures are proper, the contractor's quality control test data may be used for acceptance decisions.

The contractor's QC test results may be considered verified if the following criteria are satisfied:

1. The difference between the contractor's QC test results and the JMF fall within the single test tolerance shown in Table 1, or
2. The difference between the engineer's test results and the contractor's test results fall within the single test tolerance shown in Table 1.

If the difference between the contractor's QC test results, compared to the JMF, exceed the single test tolerances shown in Table 1, the engineer's test results will be used as the acceptance test. If the subplot is not verified, the contractor shall be notified and given a copy of the test results. Both the contractor and the engineer will verify that testing equipment is calibrated and operating properly, and correct testing procedures have been followed. Unless it is documented that the difference resulted from equipment or procedural problems, the engineer's test results will remain as the acceptance test of record.

VII. PROJECT DOCUMENTATION

a. General: The format of all test reports and quality control charts to be submitted by the contractor will be approved by the engineer before mixture production is allowed to commence. Suggested formats of reports and charts are available from the engineer. Project documentation to be provided by the contractor shall include, but may not be limited to, the following.

b. Lot Basis:

1. A complete report of QC tests shall be submitted to the engineer within 24 hours of the time the last tests were completed.
2. Control charts of all test data must be current (data should be plotted as soon as the test is complete) and available for review by the engineer.

c. Project Summation:

1. Control charts for all test data indicating individual test values, lot averages and the running average of five.
2. A tabulation of all test data including subplot data, lot averages, project average, project standard deviation and a projection of which lots are subject to a price adjustment.

VIII. MEASUREMENT AND PAYMENT

Bituminous mixture will be paid for at the bituminous mixture contract unit price.

Bituminous Mixture Price Adjustment

a. General: Adjustments to the contract unit price for bituminous mixture will be

calculated for each of four sets of criteria. The largest adjustment allowable in each case will be imposed and unit price adjustments will be applied cumulatively (lot pavement density + pavement density + bituminous mixture + failure to suspend operations) to the affected tonnage. Each of the unit price adjustments is detailed below.

b. Bituminous Mixture: If, for asphalt binder content, air voids, Gmm or VMA, the difference between the lot average and the JMF is within the lot average tolerance shown in Table 2, no adjustment will be made to the unit price for **Bituminous Mixture** under this criteria. If the lot average tolerance is exceeded for one or more parameter(s), a negative adjustment will be made to the contract unit price for **Bituminous Mixture** in accordance with Table 2. Only the largest of the four possible pay adjustments for this set of criteria will be assessed. This price adjustment is applied to the entire lot tonnage.

c. Pavement Density: Based on pavement cores or the density gage, either a 10 percent or a 25 percent adjustment in the **Bituminous Mixture** contract unit price may be imposed. The following criteria will be used and only the highest calculated pavement density price adjustment will be applied. This price adjustment is applied to the entire lot tonnage.

1. A negative 10 percent adjustment in the **Bituminous Mixture** contract unit price will be imposed if the lot average pavement density is less than 95.0 percent, but equal to, or greater than, 94.0 percent.
2. A negative 25 percent adjustment in the **Bituminous Mixture** contract unit price will be imposed if the lot average pavement density is less than 94.0 percent, but equal to, or greater than, 92.0 percent.

IX. REMOVAL

a. General: The cost of the mixture removed and the removal cost will be borne by the contractor. Removal decisions will be applied to individual sublots.

b. If the pavement density for any subplot (average of subplot cores) is less than 92.0 percent, the contractor shall remove and replace the subplot.

c. The engineer reserves the right to evaluate any subplot whose test results for asphalt binder content, Gmm, VMA, or air voids, exceed the single test tolerances shown in Table 1. If the engineer determines that the in-place mixture will not perform in accordance with normal standards, the contractor shall remove and replace the subplot.

Table 1 : Bituminous Quality Assurance Testing Tolerances (+ or -) from JMF		
Parameter	Single Test	Lot Average
Air Voids	1.00%	0.60%
Voids in Mineral Aggregate (VMA)*	1.20%	0.75%**
Maximum Specific Gravity (G _{mm})*	0.019	0.012
Asphalt Binder Content*	0.50%	0.35%
*Parameters with Target Values		
**Or less, determined by VMA Value from the 2003 Standard Specifications for Construction. The engineer retains the authority to make necessary adjustments to the JMF to ensure compliance with the intent of the specifications.		

Table 2: Bituminous Mixture Pay Adjustments		
Parameter (lot average)	Deviation (d)	Negative Unit Price Adjustment (%)
Asphalt Binder Content (deviation from JMF)	$0.35 < d \leq 0.55$	10
	$d > 0.55$	25
Air Voids (deviation from JMF)	$0.6 < d \leq 0.7$	2
	$0.7 < d \leq 0.8$	4
	$0.8 < d \leq 1.0$	6
	$1.0 < d \leq 1.1$	8
	$1.1 < d \leq 1.2$	10
Maximum Specific Gravity (G_{mm}) (deviation from JMF)	$d > 1.2$	25
	$0.012 < d \leq 0.014$	2
	$0.014 < d \leq 0.015$	4
	$0.015 < d \leq 0.017$	6
	$0.017 < d \leq 0.019$	8
Voids in Mineral Aggregate (VMA) (deviation below minimum value in the 2003 Standard Specifications for Construction)	$0.019 < d \leq 0.021$	10
	$d > 0.021$	25
	$0.0 < d \leq 0.1$	2
	$0.1 < d \leq 0.3$	4
	$0.3 < d \leq 0.4$	6
	$0.4 < d \leq 0.5$	8
	$0.5 < d \leq 0.6$	10
	$d > 0.6$	25

X. TECHNICAL SPECIFICATIONS

Section 304. Bituminous Mixtures

304.01 Description. Construct the bituminous leveling and surface courses.

The contractor will furnish all necessary machinery, tools, apparatus and other means of construction to do all the work, and furnish all the materials, except as otherwise specified, to complete the work in strict accordance with the plans and specifications included in this proposal, and in strict compliance with the current Michigan Department of Transportation Standard Specifications for Construction and special provisions.

304.02 Technical Specifications

Mix Design

A 4 point, fifty blow each side, Marshall Mix Design will be completed for each mixture used on this project. This design will be done in accordance with the Asphalt Institutes MS-2 with the following clarifications. Two theoretical density (G_{mm}) tests will be conducted for each of the four test points, without dry back. The effective specific gravity (G_{se}) will then be calculated for each test point using the average G_{mm} , and then the mixture G_{se} will be the average of the four test points. The completed mixture design will include all data from all test points and a regression table showing the following data for each 0.1% asphalt content; air voids, maximum theoretical specific gravity, compacted density, and voids in the mineral aggregate. This data, in its entirety, must be presented to and approved by the owner's representative at least two days before the mixture is placed.

It is the intent of this specification for the contractor to produce mixture at the following parameters. If the engineer believes the contractor is producing mixture at the high end or low end of any of these specification limits, the engineer shall have the authority to make any changes he feels necessary to bring the mixture back to the specified parameters.

A. MIXTURE NUMBER:	<u>13A Mod</u>	<u>36A Mod.</u>
VMA % (eff. spec. gravity)	15.5	16.5
Air voids %*	2.5*	2.5*
Fines to binder ratio (max.)	1.2	1.2
Fine angularity min.MTM 118	2.5	3.0
L.A. Abrasion % max.	40	40
Soft Particle % max.	8	6*
B. GRADATIONS - Percent passing indicated sieve:		
1"	100	100
3/4"	100	100
1/2"	75-95	100
3/8"	60-90	92-00
#4	45-80	65-90
#8	30-65	55-75
#16	20-50	--
#30	15-40	25-45
#50	10-25	--
#100	5-15	--
#200	3-6	3-7

* Modified from MDOT specifications.

- C. Final binder properties shall meet asphalt **PG 58-28** for this project.
- D. If the binder obtained from the RAP exceeds 17 percent of the total binder in the mixture, the contractor shall furnish documentation (i.e., blending chart) in order to determine the proper grade of the virgin binder required to achieve the desired final binder properties. No asphalt binder, or aggregates, derived from roofing shingles shall be introduced into any mixtures placed under this contract. No aggregates derived from steel furnace slag shall be introduced into any mixtures placed under this contract.
- The contractor will provide to the engineer asphalt delivery tickets showing asphalt cement (binder) grade, date of delivery, and quantity delivered. The contractor will provide a letter to the owner certifying that all materials approved on the mixture design were, in fact, used for the project.

2. In-Place Density

The average in-place density of the mixture shall be a minimum of 95 percent of theoretical maximum density.

The concrete placed in new curb & gutter sections, shall follow these requirements:

ADDITIONAL REQUIREMENTS:

The concrete mix design shall be a 4000 psi exterior (6.5% +/- 1.5% air entrained) mix with a maximum w/c ratio of 0.45, limestone coarse aggregate. Fibers are required. A minimum replacement of cement with 25% Fly Ash or Slag Cement is required. A mix design shall be submitted for approval prior to placement.

Concrete shall have a broom or turf drag finish.

Expansion material shall be used throughout the project any place where the concrete meets existing structures. It shall not be used as joints in the continuous sidewalk or curb. Expansion material shall be used only at the terminal ends or between new and existing concrete, but not at intermediate locations.

Joints in the Sidewalk, Curb & Gutter shall, when possible, align with parking lot joints unless separated with expansion material.

Curing Compound will be standard ASTM C309 White Pigmented and applied at a rate of 150 sft/gal.

Concrete may be open to traffic once it has reached a strength of 2500 psi or following a minimum 7 day cure time.

XIV. FIVE-YEAR WARRANTY

It is the intent of this document to provide the owner with a five-year warranty against defects caused by deficiencies in the materials and/or workmanship provided on this project. Warranty provisions do not apply to the Alaiedon Elementary School playground. The warranty covers the following conditions:

1. Cracking as defined shall be any crack caused by improper joints in the pavement, either a construction joint, a butt joint, or any cracking caused by expansion or contraction of the pavement, i.e., thermal cracking. Cracks caused by fatigue or settlement will not be covered by this warranty.
2. Delamination as defined shall be any instance where the surface course de-bonds from the underlying layer of asphalt pavement, causing slippage or complete separation.
3. Raveling as defined shall be any area where the aggregate or matrix becomes loose, or separates from the asphalt pavement. This condition will generally be caused by poor density or segregation.

Remedies for the conditions described above will be as follows:

1. Cracking. Any cracks over 3' in length and/or wider than 1/8" shall be corrected by routing/sawing and sealing or overband sealing, as directed by the engineer, with a sealer approved by the engineer.
2. Delamination. Any area that exhibits delamination will be repaired by removing the surface course and cleaning the leveling course, installing a bond coat and furnishing and installing a new surface course of a like hot mix asphalt.
3. Raveling. Any area that exhibits raveling, or a loss of aggregate or matrix, will be repaired by removing the distressed area, cleaning the leveling course, applying a bond coat and furnishing and installing a new surface course of a like hot mix asphalt.

At least once a year, for the duration of the warranty period, the owner will inspect the pavement to determine if any warranty work is necessary. If deficiencies are found, the owner will notify the contractor in writing as to the extent of the repairs needed. The contractor may also inspect the lot from time to time to determine if any warranty work is necessary. The contractor will be allowed to perform any warranty work that he feels will retard any further deterioration of any of the warranted conditions.

XII. PAYMENT

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Project Name: Mason Middle School & Aurelius Elementary
Date Prepared 03.19.2024

Scope of Work
South Parking Lot & Walking Path

Payment for this work will be by unit prices of actual quantities installed at the unit prices as listed in this proposal. Asphalt pavement quantities placed in excess of 105 percent of plan quantity shall be at the Contractor's expense.

Mason Middle School	Unit	Amount	Unit Price	Total
Cold Milling	SYD	7120		
Subgrade Undercut – Type 2	CYD	150		
Aggregate Base	TON	390		
Concrete Curb & Gutter (R&R)	LFT	100		
4" Underdrains	LFT	750		
Structure Reconstruct	EA	1		
Structure Adjustments	EA	1		
Bituminous Mix 3C Modified	TON	1440		
Bituminous Mix 5C Modified	TON	615		
Private Utility Staking	LS	1		
Restoration	LS	1		
Pavement Marking	LS	1		
Traffic Control	EA	1		
Mobilization	EA	1		
Total				

North Aurelius Elementary	Unit	Amount	Unit Price	Total
Remove Asphalt	SYD	695		
Earth Excavation	CYD	400		
Remove Tree	EA	1		
Subgrade Undercut – Type 2	CYD	150		
Aggregate Base	TON	530		
4" Underdrains	LFT	2,500		
Bituminous Mix 13A Modified	TON	240		
Private Utility Staking	LS	1		
Restoration	LS	1		
Traffic Control	EA	1		
Mobilization	EA	1		
Total				

Signed by _____

Contractor _____

Address _____

City _____ State _____ Zip _____

Dated _____