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Department of Public Works

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Steven E. Lederer
Director

May 14, 2021

RE: Airport Blvd Road Rehabilitation Project

Dear Sir/Madam,

Enclosed herewithin is Addendum Number 4 for the above referenced project. This Addendum forms a part of the contract documents, modifies the original specifications and drawings and shall be acknowledged in the Addendum Acknowledgement page of the bid proposal forms. All other conditions remain the same.

ADDENDUM NUMBER 4


1. **Special Provisions Section B / 20: Replace all with the attached.**

END OF ADDENDUM NUMBER 4

Thank you for your interest in this project. If you have any questions relating to this correspondence please submit in writing to Sonja El-Wakil at Sonja.El-Wakil@countyofnapa.org.

Sincerely,

STEVEN E. LEDERER
Director of Public Works

by: 

Sonja El-Wakil, P.E.
Associate Engineer

PART 1 - GENERAL

Hot Mix Asphalt (HMA) shall be Type A as shown on the plans and shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and as modified in these special provisions. All references to Superpave HMA in Section 39 shall be disregarded.

1.01 SUMMARY OF WORK

- A. This section applies to all hot mix asphalt (HMA) for the road pavement section.
- B. Hot mix asphalt shall be Type A HMA
- C. Hot mix asphalt dike, Type F shall conform to Section 39-2.01C of the Standard Specifications and these Special Provisions.
- D. Asphalt Concrete (AC) and HMA may be used interchangeably on the plans and specifications.
- E. The work to be performed includes the preparation of the aggregate base course, application of tack coat, the production, transporting, placing, compacting of the HMA and all other required incidental work.

1.02 SUBMITTALS

- A. The Contractor shall submit HMA source and mix design prepared by a certified laboratory to the Engineer for review and approval.
- B. Accompanying mix design, submit materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceed, specified requirements.
- C. The Contractor shall submit tickets for each load of asphalt concrete.
- D. Submit certificate of compliance for tack coat per Section 94 and Section 39-2.05A(2)(b), "Asphaltic Emulsions," of the Standard Specifications.

PART 2 – PRODUCTS

2.01 DESCRIPTION

- A. HMA
 - 1. HMA for the road pavement section shall be Type A HMA, placed in at least three layers, ½ inch maximum aggregate for the top 3” and ¾ inch maximum aggregate for the remainder, for a total of 7.5 or 8 inches total thickness of new Asphalt Concrete.
- B. Asphalt Binder shall be Steam-refined paving asphalt Grade PG 64-10 per Section 92, “Asphalt Binders” of the Standard Specifications.
- C. Tack Coat shall be applied to the finished surfaces of the aggregate base prior to placement of the HMA, between HMA layers, and to vertical surfaces of curbs, gutters, construction joints per Section 39-2.01B(10). Tack Coat shall be slow setting asphalt emulsion SS1h per Section 94, "Asphaltic Emulsions," of the Standard Specifications.

- D. HMA for Type F dike shall be 3/8" – inch Type A HMA aggregate gradation.
- E. Raw aggregate may only contain very limited "soft" or "highly absorptive" material. The County may sample the raw aggregate on the days of paving to perform LA Rattler tests and to determine absorption ratios. The hot plant operator(s) shall assist the County in obtaining belt samples immediately prior to asphalt batching at the County's sole discretion/scheduling. County reserves the right to select individual aggregate pieces for testing out of a larger sample if soft or highly absorptive material is observed. If an absorption ratio of an aggregate sample is greater than 3%, the asphalt placed on that day shall be rejected, and removed and replaced at no cost to County. LA Rattler test results and acceptance criteria shall be per the Standard Specifications. Contractor shall ensure its subcontracts with material suppliers allow the County to enter the facilities and obtain samples in accordance with this paragraph.
- F. Unacceptable Asphalt Concrete Containing Soft or Highly Absorptive Material; Liquidated Damages
- a. "Soft or highly absorptive" material is defined as material that is generally whitish or light in color (color can vary) and breaks into a powder easily when routed in a dry state with hand tools such as a screw driver and may exhibit clay like characteristics when wet.
 - b. An unacceptable concentration of material is defined as any location larger than 12 square inches (or locations) where greater than a .006% concentration by area of soft or highly absorptive material occurs.
 - i. Measurement of the concentration of soft or highly absorptive material may be taken by County at any time and within any area of the work at County's sole discretion.
 - ii. Discovery of any area of paving work that exceeds the limit of soft or highly absorptive material described in this subsection (b) is defective work which shall be addressed by the Contractor in accordance with subsection (c) below if County notifies Contractor at any time prior to one (1) year from the date of recording of a Notice of Completion for the work, or one (1) year from the date the road is open for public use if no Notice of Completion is recorded.
 - c. Soft or highly absorptive material can substantially reduce the useful life of the roadway, the extent of which is difficult to determine accurately. For each area, as determined by the County pursuant to subsection (b), that exceeds the maximum allowable amount of soft or highly absorptive material, the Contractor shall pay as liquidated damages, and not as a penalty, the amount calculated at one-half of the Contractor's bid item prices to replace that specified area. Contractor shall pay the County the liquidated damages determined in accordance with this section within sixty (60) days of written demand by the County. If a court determines this calculation of liquidated damages is unenforceable for any reason, the Contractor shall pay the County the actual cost incurred by the County to remove and repave the section of the roadway that exceeds the maximum allowable amount of soft or highly absorptive material.

i. This subsection (c) shall not apply to any area, as determined by the County pursuant to subsection (b), where a concentration of more than .006% by area of soft or highly absorptive material resides in an area of less than 12 square inches, or to any work, other than an area determined by the County pursuant to subsection (b), that contains .006% or less of soft or highly absorptive material.

d. Nothing in this paragraph F shall preclude County from seeking any or all legal and/or equitable remedies upon discovery of soft or highly absorptive material after the one (1) year period specified in subsection (b), or in the event that Contractor fails to tender the liquidated damages specified in subsection (c).

- G. Liquid anti-stripping agent (LAS) shall be added to the asphalt binder at a rate of 0.5% by weight of asphalt binder. The LAS shall be AD-here LOF 65-00 or equivalent, and shall be stored, measured, and blended with the asphalt binder in accordance with the anti-stripping agent manufacturer's recommended practice. The LAS can be added at the asphalt plant or at the refinery. When added at the asphalt plant, the equipment shall indicate and record the amount of LAS added. If added at the refinery, the shipping ticket from the refinery shall certify the type and amount of LAS added.
- H. In addition to the quality requirements in Section 39-2.02, "Aggregate," of the Standard Specifications, the aggregate for all types of asphalt concrete shall achieve a minimum Durability Index of 35 for contract compliance. The aggregate shall not be treated with lime, cement or other chemical material before the Durability Index test is performed.
- I. The eighth paragraph of Section 39-2.02, "Aggregate," of the Standard Specifications is amended to read: No single grading test shall represent more than one day's paving.
- J. The last paragraph in Section 39-2.02, "Aggregate," of the Standard Specifications is amended to read: "The combined aggregate shall also conform to the following quality requirements when mixed with an amount of asphalt determined to give 4 percent air voids by the job mix formula in accordance with the section entitled "Job Mix Formula" of these Special Provisions."
- K. The area to which paint binder (tack coat) has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction.

PART 3 – EXECUTION

3.01 GENERAL

- A. Placement of HMA shall be in accordance with Section 39 of the Standard Specifications, the Revised Standard Specifications dated 4-16-21, and these Special Provisions.

- B. A tack coat treatment shall be applied to finished surfaces of aggregate and concrete surfaces where HMA will meet and shall be applied per Section 39-2.01B(10), "Tack Coat" and 39-2.01C(3)(f) "Tack Coat" of the Standard Specifications.
- C. Total HMA thickness shall be as specified on the plans.
- D. Full compensation for furnishing, placing and maintaining the paint binder (tack coat) shall be considered as included in the contract price paid per ton of asphalt binder and no separate payment will be made therefore.
- E. The Contractor shall have a backup paver and rollers that meet the specifications of the primary equipment, on site, in the event of breakdown of the primary equipment.

3.02 JOB MIX FORMULA

The Contractor shall submit in writing a satisfactory job mix formula for each mixture to the Engineer a minimum of five (5) working days before producing asphalt concrete. The job mix formula shall be in effect until a change is approved in writing by the Engineer.

The job mix formula shall be prepared at the Contractor's expense by a materials testing laboratory approved by the Engineer, and shall be designed in accordance with ASTM Test Methods D1560 and D1561, Hveem Method; D2041, Rice's Method; and D1188, "Bulk Specific Gravity of Compacted Bitumen Mixtures, Using Paraffin-Coated Specimens." The asphalt content shall be calculated on the percentage basis by weight of dry aggregate. The voids in the mineral aggregate shall be computed based upon ASTM Bulk Specific Gravities; minimum values shall be as follows:

1/2	inch	Max.	13%
3/4	inch	Max.	12%

The job mix formula for each mixture shall establish a single percentage of aggregate passing each required sieve size. If the aggregate is separated into 2 or more sizes, the proposed gradation shall consist of gradations for individual sizes, and the proposed proportions of individual sizes, combined mathematically to indicate one proposed gradation. Such gradation shall meet the applicable grading requirements shown in Section 39-2.02A(4)(b)(ii), "Aggregate." The gradation established for the job mix formula shall produce a smooth curve within the moving average limits designated and shall not vary from the low limit on one sieve to the high limit on the adjacent sieves, or vice versa.

The job mix formula for each mixture shall be designed with sufficient samples to demonstrate the performance of the mixture having a minimum stabilimeter value of 37 at 4 percent air voids, as determined with ASTM Test Methods D2041 and D1188 or D2726.

All individual aggregate cold feed materials, prior to the addition of asphalt binder, shall have a durability of at least 35 as determined by California Test 229.

Upon prior approval of the Engineer, the Contractor may submit, in writing, a job mix formula based on data from actual plant production or recent mix designs from previous jobs using the same mixture.

Regardless of the source, the job mix formula must establish to the satisfaction of the Engineer that it conforms to all the requirements of this Section. The Engineer reserves the right to verify the job mix formula with testing personnel prior to placement of any material.

The Engineer shall specify the percentage of asphalt binder to be used in asphalt concrete and asphalt concrete base using the "Job Mix Formula" data submitted. The specified percentage of asphalt binder chosen shall provide a minimum stabilimeter value required, air voids in the lab compacted samples will be allowed to vary a maximum of two percent (2%) below to two percent (2%) above the air voids provided in the "Job Mix Formula" for the specified percentage of asphalt binder.

Air voids variation exceeding the above shall be cause to reject the job mix formula, unless otherwise permitted by the Engineer, the paving operation will cease until a new job mix formula is approved.

After the job mix formula is approved, a trial plant mix shall be made to verify compliance of the plant with the job mix formula requirements. Should the trial plant mix fail to conform to these requirements during the trial run or during actual production, production of asphalt concrete shall stop until such compliance is reestablished or until a new job mix formula is approved.

A new job mix formula shall be submitted for approval prior to use of the mixture when there is a change in the character or source of the materials composing the mix, when unsatisfactory results or other conditions make it necessary.

3.03 PROPORTIONING

The Contractor will be allowed to use two or more asphalt concrete plants provided the following conditions are met:

1. The Contractor shall give the Engineer one working day notice prior to using two or more plants.
2. The lab density, hereinafter specified, shall be the highest of the separate densities obtained that day for asphalt mixtures from each of the plants.
3. If asphalt concrete that does not meet these specifications can not be identified in the field, asphalt concrete placed for that entire day will be rejected.
4. Asphalt concrete arriving on the project from separate plants shall not vary more than 10 degrees Fahrenheit in temperature.

3.04 ROADWAY

- A. The 2nd, 3rd, and 4th paragraphs of Section 39-2.01C(5) of the Revised Standard Specifications shall be replaced with the following:
1. Place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.
- B. Before placing successive lifts of asphalt concrete on any other type of asphalt concrete or on an existing bituminous pavement, paint binder (tack coat) shall be applied in one application at a rate of from 0.08 to 0.10 gallon per square yard of surface covered. The exact rate of application will be determined by the Engineer.

3.04 SPREADING AND COMPACTING

The first paragraph of Section 39-2.01C(2), "Spreading and Compacting Equipment," of the Standard Specifications is amended to read:

Asphalt pavers shall be self-propelled mechanical spreading and finishing equipment provided with a screed or strike off assembly capable of distributing the material to not less than the full width of a traffic lane, or a traffic lane together with its adjoining shoulder. Screed action shall include any cutting, crowding or other practical action which is effective on the mixture without tearing, shoving or gouging, and which produces a surface texture of uniform appearance. The screed shall be adjustable to the required section and thickness. The paver shall be provided with either a full width roller or tamper or other suitable compacting devices. Pavers that leave ridges, indentations, or other marks in the surface that cannot be eliminated by rolling or prevented by adjustment in operation shall not be used.

Unless otherwise provided in the Special Provisions or directed by the Engineer, all asphalt concrete pavers shall be equipped with a mobile grade reference system capable of averaging the existing grade or pavement profile over a minimum 30 feet distance or by a non-contacting laser or sonar type ski with at least four referencing stations mounted on the paver at a minimum length of 24 feet shall be used. Equipment, which in the judgment of the Engineer, does not perform satisfactorily will be disallowed. The automatic screed controls shall be used for all paving unless otherwise directed by the Engineer.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.01 foot tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same manner as when placing the initial mat.

Should the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the requirements, including straightedge tolerance, of the subsection entitled "Compacting" of this section of these Special Provisions, the paving operations shall be discontinued and the Contractor shall modify his equipment or furnish substitute equipment.

Should the automatic screed controls fail to operate properly during the day's work, the Contractor may use manual control of the spreading equipment for the remainder of that day, however, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the requirements in this section before starting another day's work.

Where shown on the plans and/or specified in these Special Provisions the Contractor shall provide a means to place asphalt concrete or asphalt concrete base at the required slope at the edge of the shoulder. This shall be done by some mechanical method concurrently with the placement of the shoulder. The method of placement of the sloped material shall produce a smooth, compacted texture equal to the mat produced by the machine.

Do not allow traffic on new AC pavement until its mid-depth temperature is below 160 degrees Fahrenheit.

Equipment which does not perform satisfactorily in the opinion of the Engineer shall be disallowed and removed from the site of the work.

Unless otherwise allowed or directed by the Engineer or otherwise provided in these Special Provisions, paving shall be performed in the following order:

1. Asphalt concrete base, if any, shall be placed.
2. The base course of asphalt concrete, if any, shall be placed.
3. The top layer of asphalt concrete shall be placed.
4. Where asphalt concrete base or a base course of asphalt concrete is used, all intersecting roads, driveways and ditches shall be paved before commencement of placing the top layer of asphalt concrete.

Section 39-6.03, "Compacting," of the Standard Specifications is superseded by the following:

General Requirements

After the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. Rolling shall be performed in such a manner that cracking, shoving or displacement will be avoided.

The completed surfacing shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete by blading or other equipment shall be

eliminated by rolling or other means. The use of any equipment that leaves ridges, indentations, or other objectionable marks in the asphalt concrete shall be discontinued, and acceptable equipment shall be furnished by the Contractor.

When a straightedge 12 feet is laid on the finished surface and parallel with the center line, the surface shall not vary more than 0.01 foot from the lower edge of the straightedge. The transverse slope of the finished surface shall be uniform to a degree such that no depressions greater than 0.02 foot are present when tested with a straightedge 12 foot laid in a direction transverse to the center line and extending from edge to edge of a 12-foot traffic lane.

If the finished surface of the asphalt concrete does not meet the specified surface tolerances, it shall be brought within tolerance by either (1) abrasive grinding (with fog seal coat on the areas which have been ground), (2) removal and replacement, or (3) placing an overlay of asphalt concrete. The method will be selected by the Engineer. The corrective work shall be at the Contractor's expense.

If abrasive grinding is used to bring the finished surface to specified surface tolerances, additional grinding shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel to the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within any ground area. All ground areas shall be neat rectangular areas of uniform surface appearance. Abrasive grinding shall conform to the requirements in Section 42-3 of the Standard Specifications.

Compacting Courses Less Than 0.13 Foot Thick

Compacting equipment shall conform to the provisions of the subsection entitled "Compacting Equipment" of this section of these Special Provisions.

A pass shall be one movement of a roller in either direction. A coverage shall be as many passes as are necessary to cover the entire width being paved. Overlap between passes during any coverage, made to ensure compaction without displacement of material in accordance with good rolling practice, shall be considered to be part of the coverage being made and not part of a subsequent coverage. Each coverage shall be completed before subsequent coverages are started.

Rolling shall commence at the lower edge and shall progress toward the highest portion, except that if directed by the Engineer, rolling shall commence at the center and shall progress outwards.

Initial or breakdown compaction shall consist of 3 coverages of a layer of asphalt mixture and shall be performed with a 2-axle or a 3-wheel roller weighing not less than 12 tons and having rolling wheels with a diameter of 40 inches or more. Fewer coverages than specified above may be ordered by the Engineer if necessary to prevent damage to the layer being compacted.

The initial or breakdown compaction shall be followed immediately by additional rolling consisting of 3 coverages with a pneumatic tired roller. Coverages with a pneumatic-tired roller shall start when the temperature of the mixture is as high as practicable, preferably above 180 Deg F, and shall be completed while the temperature of the mixture is at or above 150 Deg F.

Each layer of asphalt concrete and asphalt concrete base shall be compacted additionally without delay by a final rolling consisting of not less than one coverage with a steel-tired roller weighing not less than 8 tons. Except as otherwise provided for low rates of production, a separate finish roller will be required.

Rolling shall be performed so that cracking, shoving or displacement will be avoided.

Provided it is demonstrated to the satisfaction of the Engineer that one roller can perform the work, the required minimum rolling equipment specified above may be reduced to one 2-axle tandem roller, weighing at least 8 tons, for each paver under any of the following conditions:

1. When asphalt concrete is placed at a rate of 50 tons, or less, per hour at any location.
2. When asphalt concrete is placed at a rate of 100 tons, or less, per hour and at the locations or under the conditions as follows:
 - 2.1. Placed on miscellaneous areas in accordance with the provisions in Section 39-2.01C(9), "Miscellaneous Areas and Dikes".
 - 2.2. When the width to be placed is less than 8 feet.
 - 2.3. When the total thickness to be placed is less than 0.1 foot.
3. When the total amount of asphalt concrete included in the contract is 1,000 tons, or less.

When rolling equipment is reduced as provide in this Section F(2) the rolling requirements may be reduced to a least 3 complete coverages with said tandem roller.

Alternative compacting equipment, approved by the Engineer in accordance with California Test 113, may be used for the initial or breakdown compaction if operated according to the procedures and under the conditions designated in the approval. Such allowance of alternative compacting equipment for breakdown and finish compaction does not waive the requirement for using pneumatic-tired rollers. A vibratory roller may be used as the finish roller provided that it meets the requirements for a finish roller and is operated with the vibratory unit turned off.

During rolling operations and when ordered by the Engineer, the asphalt concrete shall be cooled by applying water. No layer shall be cooled with water unless so ordered or permitted by the Engineer.

Courses 0.13 Foot Thick Or More

The Contractor shall cover the loads of asphalt concrete with tarpaulins. The Tarpaulins shall completely cover the exposed asphalt concrete until the asphalt concrete has been completely transferred into the asphalt concrete paver hopper or deposited on the roadbed.

The Contractor shall use a minimum of three rollers with separate operators: two for breakdown, and one for finish work. These rollers shall conform to the requirements for breakdown rollers as specified in Section 39 of the Standard Specifications, except that vibratory rollers using vibratory mode shall be used for initial breakdown rolling. Backup rollers shall be supplied at all paving sites.

Breakdown compaction shall be completed before the temperature in the mat drops below 250 Deg F.

Asphalt concrete shall be compacted to an average density of not less than 91 percent of the average density of specimens of the asphalt concrete mixture compacted in the laboratory per Section 39-2.01A(4)(i)(ii) of the Standard Specifications.

Average in-place density will be determined by nuclear gauge in conformance with ASTM Test Method D2950. Laboratory specimens will be compacted in conformance with California Test 304.

Nuclear gauge tests for determining average in-place density shall be taken at the locations determined by the Engineer and which represent lots of 500 tons or less of mix. A minimum of five (5) randomly selected locations within the lot shall be tested.

The extent of each lot shall be determined by the Engineer. In determining the limits of each lot consideration will be given to such factors as production rate, location (main line, shoulders, etc.), lift thickness and differences in the asphalt concrete mix.

The field density of asphalt mixtures, for the purpose of deduction, will be determined from a minimum of three drilled specimens per lot.

Standard Specifications Section 39-2.01A(4)(i)(ii) "In-Place Density, Reduced Payment Factors for Percent of Maximum Theoretical Density Table" applies.

The field density will be the average of the required drilled specimens.

The laboratory density, for the purpose of deduction, shall be the average density for all asphalt concrete samples taken for the project that represent the same grading, type and oil content as the material in question.

The amount of asphalt mixture involved will be computed from the field density and the volume of asphalt mixture. The volume of the mixture will be computed from the average thickness of the drilled specimens and the measured area of the asphalt mixture.

The limits of the asphalt mixture in question will be defined by the Engineer.

3.05 SHOULDERS, MEDIANS, AND OTHER ROADWAY CONNECTIONS

- A. Add the following to Section 39-2.01C(7) of the Revised Standard Specifications:
1. Pave shoulders and median borders adjacent to the lane before opening a lane to traffic.
 2. Place shoulder conform tapers concurrently with the adjacent lane's paving.
 3. Place additional HMA along the pavement's edge to conform to road connections and driveways. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

PART 4 – MEASUREMENT AND PAYMENT

- A. The contract price per tons for “Hot Mix Asphalt Type A” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the Plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.
- B. Tack Coat will be included in the cost of “Hot Mix Asphalt Type A” and no additional compensation will be allowed.
- C. The contract price per linear foot paid for “Hot Mix Asphalt Dike (Type F)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the Plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.