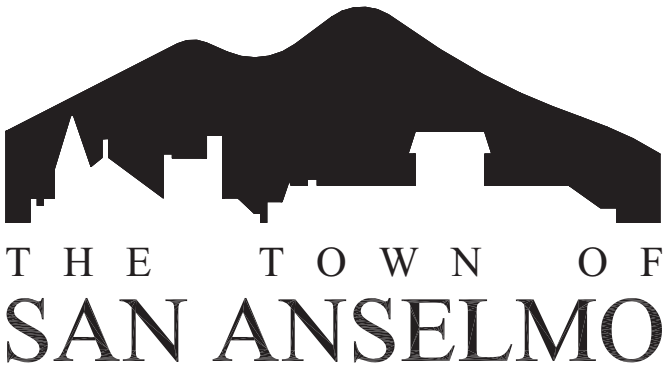

THE ALAMEDA IMPROVEMENT PROJECT

NOT FOR BIDDING PURPOSES

SPECIAL PROVISIONS

For use in Connection with the Project Bid Book, Project Plans, the Standard Specifications and Standard Plans of the California Department of Transportation dated **2015**, the Revised Standard Specifications of the California Department of Transportation current on March 12, 2018, the Caltrans Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished, and the current Marin Uniform Construction Standards.

Bid Opening:
April 2, 2018 at 10:00 a.m.
Town of San Anselmo
Council Chambers
525 San Anselmo Avenue
San Anselmo, CA 94960

March 12, 2018

THE ALAMEDA IMPROVEMENT PROJECT

These Special Provisions were prepared under the Direction of the following licensed persons:

Sean Condry, PE
Town Engineer
Town of San Anselmo

Rachel Calvert, PE
Assistant Public Works Director
Town of San Anselmo

NOT FOR BIDDING PURPOSES

IMPORTANT SPECIAL NOTICE

****

- THE "PROPOSAL AND CONTRACT" BOOK HAS BEEN RETITLED AND IS NOW THE "BID" BOOK.
- THE "NOTICE TO CONTRACTORS" HAS BEEN RETITLED AND IS NOW THE "NOTICE TO BIDDERS."
- THE "GENERAL PROVISIONS" HAVE BEEN RETITLED AND ARE NOW INCLUDED IN THE SPECIAL PROVISIONS UNDER DIVISION I.
- THE SPECIAL PROVISIONS HAVE BEEN CHANGED TO REFERENCE THE 2015 STATE STANDARD SPECIFICATIONS.
- A REFERENCE TO A STANDARD SPECIFICATION HEADING IS ONLY MADE WHEN MODIFYING THE SECTION AND IS NOT A COMPREHENSIVE LISTING OF THE SECTIONS WHICH APPLY TO THE PROJECT. UNLESS DELETED, ALL SECTIONS APPLY TO THE PROJECT. SECTIONS WHICH ARE NOT DELETED, ADDED, OR MODIFIED BY THE SPECIAL PROVISIONS REMAIN AS WRITTEN AND AS MODIFIED BY THE REVISED STANDARD SPECIFICATIONS CURRENT ON MARCH 12, 2018 . ANY MODIFICATION TO A SECTION DOES NOT CHANGE THE REST OF THE SECTION. ANY PARAGRAPH ADDED OR DELETED BY A REVISION CLAUSE DOES NOT CHANGE THE PARAGRAPH NUMBERING OF THE STANDARD SPECIFICATIONS FOR ANY OTHER REFERENCE TO A PARAGRAPH OF THE STANDARD SPECIFICATIONS.

NOT FOR BIDDING PURPOSES

TABLE OF CONTENTS

NOT FOR BIDDING PURPOSES

TOWN OF SAN ANSELMO

NOTICE TO BIDDERS

INVITING SEALED PROPOSALS FOR THE ALAMEDA IMPROVEMENT PROJECT

NOTICE IS HEREBY GIVEN that sealed proposals will be received by the Town of San Anselmo, Department of Public Works, 525 San Anselmo Avenue, San Anselmo, California 94960, until 10:00 a.m., April 2, 2018, at which time they will be publicly opened and read for: **The Alameda Improvement Project.**

This project is to be advertised pursuant to Public Contract Code 22037 and San Anselmo Municipal Code 2-10.06.

This project is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

SCOPE: The bid shall cover all costs for all work involved and furnishing of the resources and activities that are required for the ALAMEDA IMPROVEMENT PROJECT. The work to be performed under this contract consists of, but is not limited to: clearing and grubbing, pavement grinding, paving mat, hot mix asphalt paving, road base repair, curb and gutter, driveway aprons, minor concrete work, installation of storm drains, manholes and inlets, utility adjustments, pavement delineation and signage, traffic control, water pollution control and ancillary work on The Alameda.as shown on the project plans.

ENGINEER'S COST ESTIMATE: $360,000
NUMBER OF WORKING DAYS: 38
LIQUIDATED DAMAGES: $2,900
No pre-bid meeting is scheduled for this project.

NOT FOR BIDDING PURPOSES

INSPECTION OF DOCUMENTS: Plans, Notice to Bidders, Bid Book, and Special Provisions may be viewed at the Department of Public Works, 525 San Anselmo Avenue, San Anselmo CA 94960, and may be purchased at a nonrefundable cost of $50 per set. If mailed by standard USPS, an additional nonrefundable fee of $25 is required. Next day delivery service is available for a nonrefundable processing fee of $20 and requires a recipient account number. Make checks payable to the Town of San Anselmo. The Town does not guarantee the arrival of plans and specifications in time for bidding.

ELIGIBILITY: Bidders must hold a valid license to perform the required work as provided by the Business and Professions Code and may be required to submit evidence to the Town as to their ability, financial responsibility, and experience, in order to be eligible for consideration of their proposal. The Contractor shall possess a valid Class A License for the State of California at the time contract is awarded. Prior to submitting a bid, the Contractor and subcontractors must be registered with the Department of Industrial Relations and qualified to perform public work pursuant to Labor Code section 17255.5, subject to limited legal exceptions under Labor Code section 1771.4. This contract will be subject to compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4.

BID: Bids must cover the entire project and neither partial not contingent bids will be considered. Bids must be submitted as a completed Bid Book with bidder's security and signed copies of all issued addenda.

BIDDER'S SECURITY: Bids shall be accompanied by one of the following forms of bidder's security equal to at least 10 percent of the bid and made out to Town of San Anselmo: Certified Check, Cashier's Check, Bidder's Bond. If using a bidder's bond, use the form in the Bid Book or a form containing the same information.

ADDENDA: When issued, addenda will be on file at the Town of San Anselmo, Department of Public Works at least 72 hours before bids are opened. In addition, all addenda will be faxed or e-mailed to persons on the Town's Bid Holder's List; however, it shall be the bidder's responsibility to ensure that the contact information is correct and to make inquiry as to the addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda whether or not received by the bidders. Bidders who acquire project bid documents from sources other than directly from the Town of San Anselmo are not on the Town's bid holder's list and are solely responsible for inquiring about and acquiring all addenda. If the Town issues any addendum that results in a material change to the invitation for bids, the date and time for submitting bids will be extended by at least 72 hours and the revised bid opening date will be noted on the addendum.

PREVAILING WAGES: In compliance with the provisions of Section 1777.6 of the Labor Code of the State of California, as amended, the Contractor and each of his Subcontractors shall keep an accurate payroll record, showing the name, address, social security number, work classifications, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, or worker employed by them in connection with the Project. Said records shall be available for inspection at all reasonable hours, and copies shall be made available to the employer or his authorized representative, the State Division of Labor Standards Enforcement, the State Division of Apprenticeship Standards, and the Town. Attention is directed to Section 7-1.02K (2), "Wages," of the Standard Specifications and The General Prevailing Wage Rates determined by the Director of Industrial Relations for Town of San Anselmo where the work is to be completed. Copies of said wage rates are available at the Labor Compliance Office and at the Public Works Department, 525 San Anselmo Avenue, San Anselmo. Changes, if any, to the general prevailing wage rates will be available at the same location.

ACKNOWLEDGEMENT OF CONDITIONS: By submitting a bid in response to this notice inviting bids, the bidder shall be conclusively deemed to have visited the site, read, understood and agreed with all of the information and materials contained in the bid documents, including but not limited to the Contract, the Bid Book, the Special Provisions, the Project Plans, the 2015 Caltrans Standard Plans and Specifications, the Revised Standard Specifications current on March 12, 2018 , the required indemnification obligation, and the required nature and amount of insurance and endorsements and certificates evidencing such insurance.

BID OPENING: Bids will be opened and read at the Town of San Anselmo Town Hall on the day specified above. Bids must cover the entire project, and neither partial nor contingent bids will be considered.

BID PROTEST: All bid protests shall be in writing and delivered to the Town of San Anselmo Public Works Director within five (5) working days following the determination of the lowest responsible bidder. If necessary, a hearing may be held to determine the position of all involved parties.

AWARD: Award of contract, if awarded, will be to the lowest responsible bidder whose proposal complies with prescribed requirements, and will be within **fourteen (14)** days after receipt of proposals. The Town of San Anselmo reserves the right to reject any or all bids or any portion of any bid and/or waive any irregularity in any bid received.

BONDS: The successful bidder must furnish a Performance Bond, a Payment Bond, and a Defective Material and Workmanship Bond. The Performance Bond shall be in an amount equal to one hundred percent (100%) of the total amount bid by the Contractor in his proposal. The Payment Bond shall be in an amount equal to one hundred percent (100%) of the total amount bid by the Contractor in his proposal. The Defective Material and Workmanship Bond shall be in an amount equal to not less than ten percent (10%) of the contract cost of work determined in the final pay estimated prepared by the Engineer. The surety for such security shall be currently admitted to transact surety insurance by the California Department of Insurance and shall carry a Best's rating of no less than A.

NOT FOR BIDDING PURPOSES

Failure of the successful bidder to execute and return the contract, or to file acceptable bond, as required, within the time allotted shall be cause for the annulment of the award and forfeiture of the bidder's security. The bidder's security of unsuccessful bidders may be retained by the Town of San Anselmo for a period of 30 days after award. If a bidder to whom the contract is awarded fails, or refuses, to execute the contract within 12 days of notice of award, as herein provided, the Director of Public Works may award to the next lowest bidder and apply the bidder's security of the bidder failing, or refusing, to execute contract as herein required. The bidder's security of bidders to whom no award was made will be returned upon request.

If a bidder has any problems understanding or accepting any of the terms and/or conditions specified in the bid documents, or for additional information concerning this project, please call Sean Condry, Public Works Director at (415) 258-4676. For technical questions or inquiries based on patent ambiguity of the plans, specifications, contract documents or estimate must be communicated in writing to scondry@townofsananselmo.org and rcalvert@townofsananselmo.org **prior** to 10:00 A.M. on March 26, 2018, and the Town will provide a written response.

Date: 3/12/18

By: _____
Sean Condry
Director of Public Works/Town Engineer

NOT FOR BIDDING PURPOSES

SPECIAL PROVISIONS

- GENERAL -

The work embraced herein shall be done in accordance with the Contract Documents: the bid book, these special provisions, the project plans, the California Department of Transportation Standard Specifications dated 2015 and Standard Plans dated 2015, the latest version of the Revised Standard Specifications (available at http://www.dot.ca.gov/des/oe/construction-contract-standards.html), the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished, and the current Marin Uniform Construction Standards.

Refer to Section 5-1.02 for the order of precedence of Contract Documents in case of any conflict.

Special provisions and Revised Standard Specifications, under separate cover, are under headings that correspond with the main-section headings of the Standard Specifications. A main-section heading is a heading shown in the table of contents of the Standard Specifications.

Each special provision begins with a revision clause that describes or introduces a revision to the Standard Specifications. A reference to a Standard Specification heading is only made when modifying the section and is not a comprehensive listing of the sections that apply to the project. All sections apply to the project. Sections that are not deleted, added, or modified by the special provisions remain as written and as modified by the Revised Standard Specifications. Any modification to a section does not change the rest of the section. Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the Standard Specifications for any other reference to a paragraph of the Standard Specifications.

Any reference to a State Agency or officer shall be interpreted as if the corresponding Town Office or officer acting under this contract were so specified.

Any reference to contact information for the State shall be interpreted as if the corresponding Town contact information were so specified. Should there be any question as to what the corresponding information would be, contact the Town Director of Public Works for determination.

Where the version of a referenced document is not specified, use the current version in effect on the date of the Notice to Bidders.

Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.

All items in a list apply unless the items are specified as choices.

NOT FOR BIDDING PURPOSES

^^

DIVISION I GENERAL PROVISIONS

^^

1 GENERAL

Replace paragraph 9 of section **1-1.01 GENERAL** with:

The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" or "Bidder shall" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences written in the imperative mood as starting with "The Contractor must or Contractor shall" and interpret "you" as "the Contractor" and "your" as "the Contractor's."

NOT FOR BIDDING PURPOSES

Add to section **1-1.07B Glossary**:

Addendum: Written interpretations or revisions to any of the contract documents issued by the Town before the bid opening.
Bid: (or Proposal) Completed Bid Book, signed addenda if issued, and bidder's security
Bid Book: The instructions to bidders, proposal, and associated forms required to be submitted with the bid; and sample contract forms as outlined in this document.
Claim: A written demand or assertion by Contractor seeking, as a matter of asserted right, adjustment of the terms of the Contract Documents, payment of money in addition to the Contract Amount, extension of Contract Time, or determination of other disputes or matters in question between the Town and Contractor arising out of or related to the Contract Documents or the performance of the Work, including claims alleging an error or omission in the Contract Documents.
Completion (or Contract Acceptance): Acceptance of the completed contract by Town Council.
Contract Agreement (or Contract): Written and executed contract between the Town and the Contractor
Contract Documents: The Contract Documents consist of the accepted Bid; all issued Addenda (if any); all Bidding Documents including the Notice to Bidders, Instructions to Bidders, Bid Book, Schedule of Bid Items, List of Subcontractors, Debarred Contractor List, Public Contract Code Statements, Questionnaire, and Non-collusion Affidavit, Experience and Financial Qualifications, Debarment and Suspension Certification, Field Review Certification, Contractor's License Requirement Declaration, Bidder's Security, Faithful Performance Bond, Labor and Material Bond, Escrow Agreement for Security Deposit in Lieu of Retention if submitted, Defective Materials and Workmanship Bond, Worker's compensation Certification, executed Contract Agreement, insurance, project Plans and Special Provisions, all documents included by reference in any contract document ,2015 State of California Standard Specifications, 2015 State of California Standard Plans, 2008 Marin Uniform Construction Standards, the Caltrans Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished, warranty, fully executed contract change orders, and any Engineer endorsed working drawings, sketches, or instructions clarifying or enlarging upon the work specified herein issued by the Town.
Defective Work: Work that is unworkmanlike, unsatisfactory, faulty, omitted, incomplete, deficient, or does not conform to the requirements of the Contract Documents, directives of the Engineer, or requirements of any inspection, reference standard, test, or approval specified in the Contract Documents.

Director of Public Works/ Engineer: "Director of Public Works" and the term, "Engineer" shall mean the Director of the Department of Public Works of San Anselmo, acting on behalf of the Town or ex officio as engineer of the awarding entities as described under the definition of "Town ", or his authorized agent acting within the scope of his authority, who shall act as the representative of the Town during the term of the contract.
Laboratory: The laboratory or laboratories authorized by the Town of San Anselmo to test materials and work involved in the contract.
Legal Holidays: Those days designated as holidays by the Town of San Anselmo.
Office Engineer: Public Works Director
Punch list: An inventory prepared by the Town of contract items of work, or portions thereof, that are incomplete, deficient, or not in conformance with the contract plans, specifications, contract change orders, or other contract documents.
Requests for Information: A request from the contractor or one of their subcontractors, to the Town, seeking an interpretation or a clarification of some requirement of the contract documents submitted to the Town in the form required by the Contract. The Contractor shall clearly and concisely set forth, in writing, the issue for which they seek clarification or interpretation and why a response is needed from the Town. The contractor shall, in the written request, set forth their interpretation or understanding of the contract's requirements along with reasons why they have reached such an understanding. Responses from the Town will not change any requirements of the contract documents unless so noted in the Request for Information Response by the Town.
Schedule Submittals: Contract schedules, contract schedule updates, contract schedule revisions, time impact analyses, etc. required by the Contract to be provided to the Town for review and acceptance.
Shop Drawings: Any technical submittals, shop drawings or samples, including supporting catalogue cuts, manufacturer's literature, sketches or drawings, calculations, and other pertinent data, required by any technical specification included in these contract documents. The contractor shall transmit to the Town submittals/shop drawings in sufficient detail to enable the Town to review the information and determine that the Contractor clearly understands the requirements of the contract documents.
Standard Plans: The Standard Plans of the State of California Department of Transportation dated 2015.
Standard Specifications (or State Standard Specifications): State of California Department of Transportation Standard Specifications, dated 2015, as revised by the most recent version of the Revised Standard Specifications. Any reference therein to the State of California or a State agency, office, or officer shall be interpreted to refer to the Town or its corresponding agency, office, or officer acting under this contract.
State Highway Engineer: The Town Engineer of the Town of San Anselmo, State of California.
Substitution (or Equal) Submittals: A request from the Contractor to substitute a material, article, device, product, fixture, form, type of construction, or process called for in the contract documents with another item which shall be substantially equal in all respects to that so indicated or supplied.
Town: Town shall mean the Town of San Anselmo, a political subdivision of the State of California, or, if applicable, the public entity awarding this contract by action of the Town Council sitting as the governing body of such public entity, except as provided in the indemnity and insurance requirements in Section 7.
Town Council: Town Council shall mean the governing body of San Anselmo, California.
Transportation Building, Sacramento: Town Hall, Town of San Anselmo, State of California.
Uniform Construction Standards: Uniform Construction Standards shall mean the Uniform Construction Standards approved and adopted by the Cities of Marin and County of Marin in May 2008 and as revised through March 12, 2018.

NOT FOR BIDDING PURPOSES

Replace the following terms in section **1-1.07B** with:

Bid Item List: (or Schedule of Bid Items) List of bid items and the associated quantities. Once reviewed, verified and accepted, the Bid of Low Bidder submitted to the Town is the verified Bid Item List. After Contract award, interpret a reference to the Bid Item List or the Schedule of Bid Items as a reference to the verified Bid Item List.
Contract (or Contract Agreement): Written and executed contract between the Town and the Contractor
Contract Acceptance (or completion): Acceptance of the completed contract by Town Council
Department (or Department of Transportation): The Town Council.

State: The Town of San Anselmo. Any reference to a State Agency or officer shall be interpreted as if the corresponding Town Office or officer acting under this contract were so specified.
Submittals: Any technical submittals, shop drawings or samples, including supporting catalogue cuts, manufacturer's literature, sketches or drawings, calculations, and other pertinent data, required by any technical specification included in these contract documents. The contractor shall transmit to the City submittals/shop drawings in sufficient detail to enable the City to review the information and determine that the contractor clearly understands the requirements of the contract documents.

Replace " delay" and its definition in section 1-1.07B with:

delay: Event that extends the completion of an activity.

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the work began such as:
   1.1. Change in the work
   1.2. Department action that is not part of the Contract
   1.3. Presence of an underground utility main not described in the Contract or in a location substantially different from that specified
   1.4. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the Contractor's convenience
   1.5. Department's failure to obtain timely access to the right-of-way
   1.6. Department's failure to review a submittal or provide notification in the time specified
2. **critical delay:** Excusable delay that extends the scheduled completion date
3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
   3.1. Critical delay
   3.2. Delay to a controlling activity caused by you
   3.3. Non–working day

NOT FOR BIDDING PURPOSES

^^

2 BIDDING

Replace section **2-1.06A General** with:

Plans, Notice to Bidders, Bid Book, and Special Provisions may be viewed or purchased at the Town of San Anselmo Department of Public Works, 525 San Anselmo Avenue, San Anselmo, CA 94960.

2015 Standard Specifications and *Standard Plans* may be viewed at the Caltrans 'Bidders' Exchange Web site and may be purchased at the Caltrans Publications Unit of the Division of Procurement and Contracts: (916) 263-0822.

The Revised Standard Specifications and the 2008 Marin County Standards can be obtained via email from the Town at no charge. Email request to rcalvert@townofsananselmo.org. Revised Standard Specifications can also be obtained from Caltrans website at: http://www.dot.ca.gov/des/oe/construction-contract-standards.html

Replace section **2-1.06B Supplemental Project Information** with:

Supplemental project information, if available, can be obtained from the Town of San Anselmo Department of Public Works, 525 San Anselmo Avenue, San Anselmo, CA 94960

Delete section **2-1.15 DISABLED VETERAN BUSINESS ENTERPRISES**

Delete section **2-1.18 SMALL BUSINESS AND NON–SMALL BUSINESS SUBCONTRACTOR PREFERENCES**

Delete section **2-1.27 CALIFORNIA COMPANIES**

Replace section **2-1.33 BID DOCUMENT COMPLETION AND SUBMITTAL** with:

2-1.33 BID DOCUMENT COMPLETION AND SUBMITTAL

The Engineer may, at a time prior to the bid opening, issue addenda to the Notice to Bidder, Bid Book, Special Provisions, Plans and Specifications to amend, clarify, or correct matter contained therein. Such addenda shall constitute a part of said Plans and Specifications and shall be equally binding with them. Addenda will be forwarded to all prospective bidders on the Town's bid holders list, so long as their contact information was correctly provided to the Town.
All addenda issued for this project must be signed and submitted with your Bid Book

Complete the forms in the Bid Book.

Submit the completed Bid Book, signed addenda (if issued), and bidder's security with your bid.

If using a bidder's bond, you may use the form in the Bid Book. If you do not use the form in the Bid Book, note 'see attached equivalent' on the form in the Bid Book, and submit a form containing the same information. If submitting cashier's check, or certified check, note "see attached alternative method of security" on the form in the Bid Book and attach the security.

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract name
4. Identifying the date and time of the bid opening

Failure to submit the forms and information as specified results in a nonresponsive bid.
If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

NOT FOR BIDDING PURPOSES

Replace section **2-1.35 RESERVED with:**

2-1.35 GUARANTY
Furnish a Defective Material and Workmanship Bond (sample in Appendix A of Bid Book), of a surety company acceptable to the Engineer, and payable to the Town of San Anselmo, in a sum not less than ten percent of the total Final Estimate amount. This warranty bond shall be delivered to the Engineer before requesting Contract Acceptance by the Town.

^^

3 CONTRACT AWARD AND EXECUTION

Replace section 3-1.02B **TIED BIDS** with:

The Town breaks a tied bid with a coin toss.

Replace section 3-1.05 **CONTRACT BONDS (PUB CONT CODE §§ 10221 AND 10222)** with:

The successful bidder must furnish 2 bonds:

1. Payment bond to secure the claim payment of laborers, workers, mechanics, or materialmen providing goods, labor, or services under the Contract. This bond must be equal to at least 100 percent of the total bid.
2. Performance bond to guarantee the faithful performance of the Contract. This bond must be equal to at least 100 percent of the total bid.

Whenever any surety on any such bonds become insufficient, or if there is a reasonable cause to believe that such surety or sureties have become insufficient, a demand in writing may be made of you to furnish good and sufficient bond or bonds required by the terms of the contract. Thereafter, no payment will be made upon such contract to you or any assignee of yours until such further bond or bonds or additional surety has been furnished.

The surety for such security shall be currently admitted to transact surety insurance by the California Department of Insurance and shall carry a Best's rating of no less than A.

Notification of Surety Companies - The surety companies shall familiarize themselves with all of the conditions and provisions of the contract, and shall waive the right of special notification of change or modification of the contract, or of any other act or acts by the Town or its authorized agents, under the terms of the contract. Failure to notify the surety companies of changes shall in no way relieve them of their obligations under the contract.

The Town furnishes the successful bidder with bond forms.

NOT FOR BIDDING PURPOSES

Delete section **3-1.08, SMALL BUSINESS PARTICIPATION REPORT**

Delete section **3-1.11, PAYEE DATA RECORD**

Replace section **3-1.17 RESERVED with:**

3-1.17 BID PROTEST PROCEDURES

Any protest of the proposed award of Bid to the bidder deemed the lowest responsible bidder must be submitted in writing to the Town no later than 5:00 PM of the fifth (5^{th}) business day following the date of the Bid opening, and

- The initial protest must contain a complete statement of the basis for protest.
- The protest must state the facts and refer to the specific portion of the document or the specific statute that form the basis for the protest. The protest must include the name, address, and telephone number of the person representing the protesting party.

- The party filing the protest must concurrently transmit a copy of the initial protest to the bidder deemed the lowest responsible bidder.
- The party filing the protest must have actually submitted a Bid on the Project. A subcontractor of a party filing a Bid on this Project may not submit a Bid Protest. A party may not rely on the Bid Protest submitted by another Bidder, but must timely pursue its own protest.
- The procedure and time limits set forth in this Section are mandatory and are the Bidder's sole and exclusive remedy in the event of a Bid Protest. The Bidder's failure to fully comply with these procedures shall constitute a waiver of any right to further pursue the Bid Protest, including filing of a challenge of the award pursuant to the California Public Contracts Code, filing of a claim pursuant to the California Government Code, or filing of any other legal proceedings.
- The Town shall review all timely protests prior to formal award of the Bid. The Town shall not be required to hold an administrative hearing to consider a timely protest, but may do so at the option of the Town Manager. At the time of the Town Council's consideration of the award of the Bid, the Town Council shall consider the merits of any timely protests. The Town Council may either accept the protest and award the bid to the next lowest responsible bidder or reject the protest and award to the lowest responsible bidder.
- These bid protest procedures shall not limit the Town's ability to reject all bids.

Bid Protests based upon a staff recommendation to the Town Council that the apparent low bidder is not a responsible bidder shall be subject to the following procedure:

- The Town Engineer or his/her designee, shall provide notice to the apparent low bidder of its determination and recommendation to the Town Council that the bidder is not responsible stating the specific reasons therefore.
- The bidder shall no later than 5:00 PM of the second (2nd) business day following receipt of the notice, file any protest in writing with the Town Engineer or his/her designee. The protest must clearly specify in writing the grounds and evidence on which the protest is based. If the protestor later raises new grounds or evidence not previously set forth in the written submissions that reasonably could have been raised, the Town will not consider such new evidence in the determination of the protest.
- The protest will be processed in the same manner as other protests are processed as described above.

NOT FOR BIDDING PURPOSES

Replace section **3-1.18 CONTRACT EXECUTION** with:

The successful bidder must sign the *Contract* form.
Deliver two copies of the following to the Office Engineer:

1. Signed Contract form
2. Contract bonds
3. Documents identified in section 3-1.07
4. Small Business (SB) Participation Report form
5. For a federal-aid contract, Caltrans Bidder - DBE Information form
6. For a federal-aid contract, form FHWA-1273
7. Insurance documents

For an informal-bid contract, the Office Engineer must receive these documents before the 5th business day after the bidder receives the contract.

For all other contracts, the Office Engineer must receive these documents before the 10th business day after the date that the Notice of Award is mailed to the bidder.

The bidder's security may be forfeited for failure to execute the contract within the time specified (Pub Cont Code §§ 10181, 10182, and 10183).

A sample of the *Contract* form is included in the Sample Contract Forms section of the Bid Book.

^^

4 SCOPE OF WORK

Add to section **4-1.06 DIFFERING SITE CONDITIONS (23 CFR 635.109)**:

During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall no later than five (5) working days from discovery of the differing site condition notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the Engineer will investigate the conditions, and, if the Engineer determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The Engineer will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment that results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

No contract adjustment will be allowed under the provisions specified in this section for any effects caused on unchanged work.

Any contract adjustment warranted due to differing site conditions will be made in accordance with the provisions in Section 4-1.05, "Changes and Extra Work," of the Standard Specifications except as otherwise provided.

NOT FOR BIDDING PURPOSES

^^

5 CONTROL OF WORK

Add to section **5-1.01 GENERAL**:

If a portion of the Work is covered prior to inspection by the Town (contrary to Engineer's request or direction, or contrary to the requirements of the Contract Documents), you shall, if required by the Engineer, uncover the Work for the Engineer's observation, and replace the Work at your expense without adjustment of the Contract Time or the Contract Sum.

If a portion of the Work has been covered, which is not required by the Contract Documents to be observed or inspected prior to it being covered and which the Engineer has not specifically requested to observe prior to its being covered, the Engineer may request to see such Work and it shall be uncovered and replaced by you. If

such Work is in accordance with the Contract Documents, the costs of uncovering and replacing the Work shall be added to the Contract Amount by Change Order; and if the uncovering and replacing of the Work results in an Excusable Delay or a Compensable Delay, an appropriate adjustment of the Contract Time shall be made by Change Order. If such Work is not in accordance with the Contract Documents, you shall pay such costs and shall not be entitled to an adjustment of the Contract Time or the Contract Amount.

Replace section **5-1.02 CONTRACT COMPONENTS** with:

A component in one Contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.

If a discrepancy exists:

1. The governing ranking of Contract parts in descending order is:

    1.1. Special provisions
    1.2. Project plans
    1.3. Revised standard specifications
    1.4. Standard specifications
    1.5. Revised standard plans
    1.6. Standard plans
    1.7. Marin Uniform Construction Standards
    1.8. Supplemental project information

2. Written numbers and notes on a drawing govern over graphics
3. Detail drawing governs over a general drawing
4. Specific specification governs over a general specification
5. Specification in a section governs over a specification referenced by that section

If a discrepancy is found or confusion arises, submit an RFI, reference shall be made to the Director of Public Works and his decision shall be final.

NOT FOR BIDDING PURPOSES

Add to section **5-1.12 ASSIGNMENT:**

The Contract Documents, and any portion thereof, shall not be assigned or transferred, nor shall any of the Contractor's duties be delegated, without the written consent of the Town. Any attempt to assign or delegate the Contract Documents without the written consent of the Town shall be void and of no force and effect. A consent by the Town to one assignment shall not be deemed to be a consent to any subsequent assignment.

Pursuant to California Government Code section 4552, the Contractor shall assign to the Town, all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Action (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the California Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract.

This assignment shall be made and become effective at the time the Town tenders final payment to the Contractor, without further acknowledgment by the parties. The Contractor further warrants that all goods, services, and materials provided to the Town in accordance with this Contract are free and clear of all liens and encumbrances.

Add to section **5-1.16 REPRESENTATIVE**:

The Contractor shall designate in writing before starting work, for approval by the Engineer prior to construction, an authorized representative who shall have the authority to represent and act for the Contractor. The authorized representative shall be the same person from the beginning to the end of the project. Said authorized representative shall have a mobile phone at the site at all time while work is in progress. The representative shall provide an emergency contact list whereby an authorized contractor representative is reachable at all times for the duration of the Contract. Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the Engineer so that proper inspection may be provided.

Add to section **5-1.20B(1) General**:

Procure all permits and licenses, pay all charges and fees, and give all notices necessary to the due and lawful prosecution of the work.

You and your subcontractors must possess valid Town of San Anselmo business licenses, and provide a copy to the Engineer; valid State contractor licenses with a classification appropriate for the work to be performed (Bus & Prof Code § 7000 et seq.), and valid public works contractor registration numbers with the Department of Industrial Relations.

Pay all license fees and royalties related to or necessary for the Work and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device that is the subject to patent rights or copyrights held by others.

Replace paragraph 4 of section **5-1.23A General** with:

Each sheet of a submittal must include:
1. Project Name
2. Submittal Number
3. Date of Submittal

Add to section **5-1.23A General**:

Proposed Products List
Within five (5) days after contract approval, submit a complete list of materials to be incorporated into the project stating the special provision section, the vendor's name, the manufacturers name if different from the vendor's, trade name, and model number or code for each product.

NOT FOR BIDDING PURPOSES

Add to section **5-1.27A General:**

Make a record of changes during construction on one set of prints of the plans and specifications provided by the Engineer for this purpose. This set of documents shall be kept at the job site and shall be used only for marking as-built conditions. Upon completion of the project, deliver these documents to the Engineer prior to the processing of the final estimate.

Replace section **5-1.27E Change Order Bills** with:

Maintain separate records for change order work costs. Submit to the Engineer daily.

Replace the first sentence of section **5-1.36E** with**:**
Protect survey monuments.

Add to section **5-1.43A General**:

Your failure to comply with section 5-1.43 including section **5-1.43B Initial Potential Claim Record**, section **5-1.43C Supplemental Potential Claim Record**, section **5-1.43D Full and Final Potential Claim Record**, and section **5-1.43E Alternative Dispute Resolution** is:

1. Waiver of the potential claim and a waiver of the right to a corresponding claim for the disputed work in the administrative claim procedure
2. Bar to arbitration (Pub Cont Code 10240.2 and Pub Cont Code § 20104.2)

Certify all potential claim records with reference to the California False Claims Act, Government Code Sections 12650- 12655.

^^^

6 CONTROL OF MATERIALS

Add to section **6-2.03C Certificates of Compliance:**

Furnish certificates of compliance where specifically required by the Standard Specifications, by these Special Provisions, and as requested by the Engineer.

^^^

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Replace section **7-1.02A General** with:

Comply with laws, regulations, orders, and decrees applicable to the project. Indemnify and defend the Town of San Anselmo; the public entity awarding this contract by action of the Town Council sitting as the governing body of such public entity; and the Town's employees, officers, and agents against any claim or liability arising from the violation of a law, regulation, order, or decree by you or your employees or any individual or company furnishing resources or activities for you. Immediately report to the Engineer a discrepancy or inconsistency between the Contract and a law, regulation, order, or decree.

You shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the Work.

If the Town incurs any fines or penalties because of your failure to comply with a law, regulation, order, or decree, the Town deducts the amount of the fine or penalty.

Immediately notify the Engineer if a regulatory agency requests access to the job site or to records. Submit a list of documents provided to the agency and issued enforcement actions.

A Town business license must be held.

Add to section **7-1.02I(2) Nondiscrimination:**

Contractor must comply with the STANDARD CALIFORNIA NONDISCRIMINATION CONSTRUCTION

NOT FOR BIDDING PURPOSES

CONTRACT SPECIFICATIONS (GOV. CODE, SECTION 12990). Contractor must include Section 7-1.02I(2) in all subcontracts.

Add to section **7-1.02K(3) Certified Payroll Records (Labor Code § 1776)**:

Do not submit certified payroll records by email. Submit certified payroll to the attention of the Engineer at 525 San Anselmo Avenue, San Anselmo, California, 94960.

Add to section **7-1.02K(6)(a) General:**

The Engineer may notify Cal/OSHA if you fail to establish or maintain a safe and healthful workplace. The Engineer notifying or failing to notify Cal/OSHA does not relieve the Contractor of Contractor's responsibility to provide public and worker safety. The Engineers failure to identify an unsafe condition does not relieve the Contractor of Contractor's responsibility to provide public and worker safety.

Replace section **7-1.02L(2) Antitrust Claims** with:

The following provisions of Public Contract Code Section 7103.5 and Government Code Sections 4553 and 4554 shall be applicable to the Contractor and all subcontractors:

"In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties."

"If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery."

"Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action."

NOT FOR BIDDING PURPOSES

Add to section **7-1.03 PUBLIC CONVENIENCE**:

Compliance with these special provisions does not relieve you of your responsibility for public safety.

You shall conduct operations in a manner that will result in the least possible obstruction and inconvenience to the public. You shall undertake no greater length or amount of work than you can prosecute properly with due regard to the rights of the public.

Unless otherwise provided in the Special Provisions or approved in writing by the Public Works Director, all public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible.

No work will be allowed on Saturday, Sunday, or legal Town holidays, unless shown on the plans, specified in these Special Provisions or approved by the Engineer.

The Contractor shall exercise diligence in preventing dust nuisance. When necessary or when directed by the Engineer, the Contractor shall apply water for laying dust. Water shall be applied by means of pressure-type distributors equipped with a spray system that will insure a uniform application.

Provide driveway access. You are responsible for investigating and accommodating the specific access needs of the residents whose driveways are impacted by your construction activity. Prior to closure of driveways, coordinate and notify the property owner or resident at least twice of such closure. Closure notices shall be given to the property owner/resident 48 hours and one hour prior to each closure. It is your responsibility to assess and accommodate all property owners' specific needs for driveway access. In no case shall a driveway remain closed for more than 8 hours unless otherwise authorized by the Engineer.

Pedestrian access facilities shall be provided through construction areas at all times. If your operations require closure of walkways, adequate pedestrian directional signs shall be provided and maintained. At the end of each working day or until the pedestrian walkways are permanently restored, temporary asphalt concrete (4'-0" minimum width) or trench steel plate ADA compliant walkways, free from tripping hazards, shall be provided and maintained. The temporary walkway surfacing shall be skid resistant and free from irregularities.

Provide all public notification, written and otherwise, to ensure public convenience and public safety as specified herein and in the Standard Plans and Specifications, and as directed by the Engineer.
Provide written notification to the public, local residents and businesses, local utility companies and any other persons or agencies affected by this project.

At all times other than normal working hours, all lanes shall be provided for uninterrupted traffic.

Delete the last sentence in the 10th paragraph of **7-1.03 PUBLIC CONVENIENCE**

Add to section **7-1.04 PUBLIC SAFETY**:

The Contractor shall prepare a Traffic Control Plan for each street and for each stage of construction and when requested by the Engineer for any specific construction activity. The Traffic Plan shall be prepared by a person who is certified by the Institute of Transportation (ITS), the American Traffic Safety Services Association (ATSSA), the International Municipal Signal Association (IMSA) or the State of California Department of Transportation (Caltrans) as having successfully completed training in the design and operation of work zone traffic control. Along with the Traffic Control Plan, submit the designer's Certification. Work shall not proceed without the Engineer's advance approval of the Traffic Control Plan for the work attempted.

Traffic lanes may be temporarily shifted only during the hours of work. All original traffic lanes must be restored at the end of each work shift.

If the failure to perform or the manner of performance of the Work results in a threat to public health or safety, the Town may, after making a reasonable, at the sole discretion of the Public Works Director, attempt to contact you, perform necessary emergency work and deduct the reasonable cost of it from the amount owed to you. The Town performing or failing to perform necessary emergency work does not relieve the Contractor of Contractor's responsibility to provide public and worker safety. The Engineer’s failure to identify an unsafe condition does not relieve the Contractor of Contractor's responsibility to provide public and worker safety.

NOT FOR BIDDING PURPOSES

Add to section **7-1.05A General:**

For the purpose of Section 7-1.05 INDEMNIFICATION, "TOWN" shall mean the Town of San Anselmo, and the public entity awarding this contract by action of the Town Council sitting as the governing body of such public entity.

Contractor shall indemnify and hold harmless Town, its officers, employees, agents and volunteers from and against all liability, loss, damage, expense, and cost (including, without limitation, reasonable legal counsel fees, expert fees and all other costs and fees of litigation) of every nature arising out of or in connection with Contractor's negligence, recklessness, or willful misconduct in the performance of work hereunder, or its failure to comply with any of its obligations contained in this Contract, except such loss or damage caused by the active negligence or willful misconduct of the Town. It is expressly understood and agreed that the foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the State of California and will survive termination of this Contract.

In those instances where the Town has obtained "Rights of Entry" from private property owners upon whose property it will be necessary for the Contractor to enter to perform the work to be done under the contract, Contractor shall indemnify such property owners in the same manner as the Town is indemnified.

Add to section **7-1.06A General:**

For the purpose of Section 7-1.06 INSURANCE, "TOWN" shall mean the Town of San Anselmo, and the public entity awarding this contract by action of the Town Council sitting as the governing body of such public entity.

Contractor shall procure and maintain as a minimum for the duration of the contract, the following described insurance against claims for injuries to persons or damages to property that may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

a. Minimum Scope of Insurance

Coverage shall be at least as broad as:

i. General Liability: Insurance Services Office (ISO) Commercial General Liability coverage form CG 00 01 or equivalent.

ii. Automobile Liability: ISO Business Auto Coverage form number CA 00 01 (Ed. 01/87 or equivalent) covering Code 1 "any auto" with endorsement CA 0029 (auto contractual).

iii. Worker's Compensation insurance as required by the State of California and Employers' Liability Insurance.

b. Minimum Limits of Insurance

Contractor shall maintain limits of no less than:

NOT FOR BIDDING PURPOSES

i. General Liability: $3 million per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit.

ii. Automobile Liability: $2 million per accident for bodily injury and property damage.

iii. Employers' Liability: Provide Employer's Liability Insurance in amounts not less than:

1. $1,000,000 for each accident for bodily injury by accident
2. $1,000,000 policy limit for bodily injury by disease
3. $1,000,000 for each employee for bodily injury by disease

c. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the Town of San Anselmo. At the option of the Town of San Anselmo, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Town of San Anselmo, its officials, employees and volunteers, or the Contractor shall provide a financial guarantee satisfactory to the Town of San Anselmo guaranteeing payment of losses and related investigations, claim administration and defense expenses.

d. Other Insurance Provisions

The General Liability policy is to contain, or be endorsed to contain, the following provisions:

i. The Town of San Anselmo, its officials, employees and volunteers are to be covered as insured with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations.

ii. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance (using either the Town's prepared form or using ISO form CG 20 10 11 85 or equivalent).

iii. For any claims related to this project, the Contractor's insurance coverage shall be the primary insurance with respect to the Town of San Anselmo, its officials, employees, or volunteers. Any insurance or self-insurance maintained by the Town of San Anselmo shall be excess of the Contractor's insurance and shall not contribute with it.

iv. The workers' compensation policy shall contain a waiver of subrogation in favor of the Town.

v. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, except after thirty days prior written notice (10 days for non-payment of premium) by certified mail with return receipt requested given to the Town of San Anselmo.

vi. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Town, its elected and appointed officers, employees, agents or volunteers

e. Rights of Entry

NOT FOR BIDDING PURPOSES

If applicable, all private property owners granting "Rights of Entry" for construction of the work shall be covered as insured under the same coverage as provided the Town as respects their ownership of the property and the work to be done thereon.

f. Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's Financial Strength rating of no less than A-, and a Financial Size Category of no less that VII Carriers not licensed in the State of California should have a current A.M. Best's rating of no less than A:X.

g. Verification of Coverage

Contractor shall furnish the Town of San Anselmo with original certificates and amendatory endorsements effecting coverage required by this clause. The endorsements should be on forms provided by the Town of San Anselmo or on other than the Town of San Anselmo's forms, provided those endorsements or policies conform to the requirements. All certificates and endorsements are to be received and approved by the Town of San Anselmo before work commences. The Town of San Anselmo reserves the right to require complete, certified copies of all required insurance policies, including endorsements affecting the coverage required by these specifications at any time.

h. Subcontractors

Contractor shall require all its subcontractors to name Contractor, and the Town of San Anselmo under its policies as additional insured and Contractor shall require all its subcontractors to furnish separate certificates and endorsements. All coverage for subcontractors shall be subject to all of the requirements stated herein. By signing a contract the successful bidder acknowledges that he is aware of the provisions of Labor Code §3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with that Code, and that he will comply with such provisions before commencing of the work of this contract. On signing the contract, Contractor shall give the Town (1) a certificate of consent to self-insure issued by the Director of Industrial Relations, or (2) a certificate of Workers' Compensation insurance issued by an admitted insurer, or (3) an exact copy or duplicate thereof certified by the Director or the insurer.

^^

NOT FOR BIDDING PURPOSES

8 PROSECUTION AND PROGRESS

Replace section **8-1.03 PRECONSTRUCTION CONFERENCE** with:

Subsequent to the issuance of the Notice of Award, but prior to the commencement of work, a preconstruction conference will be held at the San Anselmo Town Hall, San Anselmo, California for the purpose of discussing with the Contractor the scope of work, contract drawings, specifications, existing conditions, signs and traffic control, materials to be ordered, equipment to be used, and all essential matters pertaining to the prosecution of and the satisfactory completion of the project as required. The Contractor's representatives at this conference shall include all major superintendents for the work, including major subcontractors.

At this meeting, the Contractor shall provide an emergency contact list. The list shall contain the names, addresses fax numbers and phone numbers by which they may be reached 24 hours/day. The Contractor shall also provide the contact information for the local Insurance Agent(s) for the Contractor's and subcontractors' required insurance. The contact information shall include the insurance company name, the local agent's name, local phone and fax numbers and local address.

In addition, at this meeting the work plan, schedule and sequence of work will be reviewed.

An on-site preconstruction meeting may be held for the purpose of discussing site specific matters.

Replace section **8-1.04B Standard Start** with:

Complete all pre-mobilization requirements of the special Provisions and start job site activities within 15 days of the date that the Notice of Award is mailed to the Contractor.

Submit a notice 72 hours before starting job site activities. If the project has more than 1 location of work, submit a separate notice for each location.

Diligently prosecute the work to final completion.

Delete the 3rd and 4th paragraphs of section **8-1.10A General**

Add to section **8-1.10A General:**

It is agreed that, if all the work required by the contract is not finished or completed within the number of working days as set forth in the contract, damage will be sustained by the Town, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Town will sustain in the event of and by reason of such delay; and it is therefore agreed that the Contractor will pay to the Town, $**2,900** for each and every calendar day of delay in finishing the work in excess of the number of working days prescribed in the Proposal and the Contract Agreement; and the Contractor agrees to pay said liquidated damages herein provided for, and further agrees that the Town may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

Should the Contractor prepare to begin work at the regular starting time in the morning of any days on which inclement weather or the condition of the site prevents the work from beginning at the usual starting time, and the crew is dismissed, the Contractor will not be charged for a working day whether or not conditions should change thereafter and the major portion of the day could be considered to be suitable for construction operations.

If any subcontractor or any person employed by the Contractor fails or refuses to carry out the directions of the Engineer or appears to the Engineer to be incompetent or acts in a disorderly or improper manner, he shall be discharged immediately on demand by the Engineer, and such person shall not again be employed on the work.

No subcontractor will be allowed on the project that is not listed in the List of Subcontractors contained in the Proposal, unless approved in advance and in writing by the Engineer.

Neither the contract, nor any monies due, or to become due, under the contract, may be assigned by the Contractor without the prior consent and approval of the Town Council, nor in any event without the consent of the Contractor's surety or sureties, unless such surety or sureties have waived their right to notice or assignment.

Hours of work shall be between **08:00** and **17:30** Monday through Friday unless otherwise approved by the Engineer in writing.

No work is permitted between 17:30 Friday through 08:00 Monday. No weekend work or work on holidays observed by the Town will be allowed unless approved in advance in writing by the Town.

NOT FOR BIDDING PURPOSES

Except as provided for in Labor Code Section 1815, no worker employed at any time on this work by the Contractor or any subcontractor shall be required or permitted to work longer than eight hours in one calendar day or 40 hours in one calendar week. Pursuant to Labor Code Section 1813, the contractor shall forfeit twenty-five dollars ($25) for each violation of this restriction. As further required by Labor Code Section 1813, the Town shall report all such violations to the Division of Labor Standards Enforcement.

^^

9 PAYMENT

Add to section **9-1.01 General:**

It is mutually agreed between the parties to the contract that no certificate given or payments made under the contract, except the final certificate or final payment, shall be conclusive evidence of the performance of the contract, either wholly or in part, against any claim, and no payment shall be construed to be an acceptance of any defective work or improper materials.

Add to section **9-1.02A General:**

Payment for lump sum items shall be made for the completed work on a percentage basis, as determined by the Engineer with the full amount, excluding retainage, to be paid to the Contractor upon completion of the work as specified and shown. Contractor shall submit a breakdown for each lump sum bid item at the Pre-Construction Conference showing the amount for each principal category of work, in sufficient detail to provide a basis for determining progress payments. The breakdown shall separately include costs for the various items and include labor, materials, equipment, subcontracts, fixed cost elements, incidental expenses, and a proportionate share of the overhead and profit.

NOT FOR BIDDING PURPOSES

Replace Item 2 of paragraph 1 of section **9-1.03 Payment Scope:**

2. PLACs, Taxes, and business licenses. No tax exemption certificate nor any document designed to exempt the Contractor from payment of any tax will be furnished to Contractor by the Town of San Anselmo, as to any tax on labor, services, materials, transportation or any other items furnished pursuant to this Contract.

Add Item 3 to paragraph 3 of section **9-1.03 Payment Scope:**

3. Any resource or activity not specifically listed for a bid item in the special provisions, but required to complete the bid item, shall be included in the bid price for the item. Payment for a bid item includes payment for work in sections referenced by the section set forth by that bid item.

Add to section **9-1.16A General:**

Prompt progress payment and prompt payment of withheld funds to subcontractors: A prime contractor or subcontractor shall pay a subcontractor not later than 7 days of receipt of each progress payment in accordance with the provision in Section 7108.5 of the California Business and Professions Code concerning prompt payment to subcontractors. The 7 days is applicable unless, a longer period is agreed to in writing. Any violation of Section 7108.5 shall subject the violating contractor or subcontractor to the penalties, sanction and other remedies of that section.

Add to section **9-1.16D(1) General:**

The lump sum price for "Mobilization" shall include all mobilizations, remobilizations, and demobilizations.

Add to section **9-1.16E(1) General:**

The Town may withhold or, on account of later discovered evidence, nullify all or part of any certification made to the Contractor by the Town as to the amount determined to be due the Contractor, to such extent and period of time only as may be necessary to protect the Town from loss on account of:

(A) Defective work not remedied or uncompleted work;
(B) Claims filed or reasonable evidence indicating probable filing;
(C) Failure to properly pay Subcontractors or for material or labor;
(D) Reasonable doubt that the work can be completed for the balance then unpaid;
(E) Damage to the Town, other than damages sue to delays;
(F) Damage to another Contractor, or third party; or
(G) Nonpayment of prevailing wages.

Replace section **9-1.16F Retentions** with**:**

The Town will retain five (5) percent of the estimated value of the work done. An escrow agreement for security deposit in lieu of retention may be utilized if it was submitted with the Contract and in accordance with these special provisions.

Delete section **9-1.17B Payment before Final Estimate**

Replace the first paragraph of section **9-1.17C Proposed Final Estimate** with**:**

After the Engineer has made the final inspection as provided in Section 5-1.46, and determines that the contract work has been completed in all respects in accordance with the Plans, Specifications, and Special Provisions, the Engineer estimates the amount of work completed and shows the amount payable in a proposed final estimate based on:

1. Contract items
2. Payment adjustments
3. Work paid by force account or agreed price
4. Extra work
5. Deductions

NOT FOR BIDDING PURPOSES

Replace section **9-1.17(D)1 General** with:

If you accept the proposed final estimate or do not submit a claim statement within 30 days of receiving the estimate, the Engineer furnishes the final estimate to you and the Town pays the amount due, minus retention, within 30 days. This final estimate and payment is conclusive except as specified in sections 5-1.27, 5-1.47, and 9-1.21.

If you submit a claim statement within 30 days of receiving the Engineer's proposed final estimate, the Engineer furnishes a semifinal estimate to the Contractor and the Department pays the amount due per the semifinal estimate, minus retention, within 30 days. The semifinal estimate is conclusive as to the amount of work completed and the amount payable except as affected by the claims or as specified in sections 5-1.27, 5-1.47, and 9-1.21.

Within 60 days after the date of Contract Acceptance, and provided no claims, notices or liens are pending, the

retention withheld shall be released. In the event of a dispute the Town may withhold from the final payment an amount not to exceed 150 percent of the disputed amount.

Pursuant to California Government Code section 8546.7, the California State Auditor, at the request of the Town or as part of any audit of the Town, all contract documents associated with the performance of this contract shall be subject to examination and audit by the California State Auditor within three years of final payment on the contract. The Town is also entitled to audit the Contractor's project records in response to a construction claim or a Public Records Act request.

Replace paragraph 5 of section **9-1.17D(3) Final Determination of claims** with:

After the determination, the Engineer furnishes a final estimate to the Contractor and the Department pays the amount due, minus retention, within 30 days. The final estimate is conclusive as to the amount of work completed and the amount payable except as specified in sections 5-1.27, 5-1.47, and 9-1.21.

NOT FOR BIDDING PURPOSES

^^

DIVISION II GENERAL CONSTRUCTION

^^

12 TEMPORARY TRAFFIC CONTROL

Add to section 12-1.01:

Nothing in these Special Provisions shall be construed as relieving the Contractor from his responsibility as provided in Section 7.1.04. All sections of the California Vehicle Code shall be in full effect except as provided hereinafter. Section 591 and any other section excluding roads under construction from certain requirements of the Vehicle Code shall be in effect only as permitted by the Engineer. The Engineer's permission shall not be construed to relieve any person from the duty of exercising due care.

The provisions in this section may be modified or altered if, in the opinion of the Town Engineer, public traffic will be better served, and work expedited. Such modifications or alterations shall not be adopted until approved in writing by the Town Engineer.

You shall be solely responsible for complying with industry standards, the listed reference documents and the specifications throughout the complete duration of project.

Furnish, place, install, maintain, and remove construction signs for traffic control and to direct traffic through, around, and within the project limits.

NOT FOR BIDDING PURPOSES

Replace section 12-1.04 with:

Full compensation for flagging shall be included in the lump sum price for traffic control system and construction signs. The Town does not pay you separately for flagging.

The lump sum price paid for **Traffic Control System and Construction Signs** shall include furnishing all labor, materials, tools, equipment and incidentals, including preparation and providing of the Traffic Control Plan, traffic control, pedestrian path of travel, delivery of door hangers, providing and posting of all construction signs, road closure signs, detour signs, arrow boards, light towers, flaggers, temporary & permanent signs, changeable message signs, flagger, barricades, providing and posting construction signs, maintaining and removing signs, temporary traffic delineation, preparing and revising a contingency plan, any liquidated damages, and any other requirements of this section and the specifications necessary to provide for the convenience and safety of the public and to facilitate the performance of the contract work as shown on the plans and specified herein, and no additional payment will be made therefor.

Add to section 12-4.01A:

Conduct all operations with the least possible obstruction and inconvenience to the public. You must not begin work that cannot be completed within a workday with due regards to the rights of the public. In general, the work must be done in sections so that traffic disruption is minimized. Paving in one section must be completed before starting another section. It is expected that each section will be closed to traffic during actual paving operations.

You must maintain signs and barricades at all times including overnight and on weekends for the complete duration of the project. You must make sure that the signs remain posted until no longer required and are

protected from vandalism or removal. You must make sure that signage does not obstruct the sidewalk.

You must maintain pedestrian access at all times. All pedestrian access control devices must be compliant with local, state and federal ADA requirements. You must provide and maintain all signs and other warning devices (including construction and warning signs placed beyond the limits of work) for pedestrian access, and they shall remain your property after the completion of the contract.

Refer to the current "California Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Uniform Signs Chart," issued by the California Department of Transportation, and you must furnish, erect, maintain and remove all necessary signs and devices during the length of this contract.

Work must be accomplished in such a manner as to provide access to all intersecting streets and adjacent properties whenever possible. If access to any property cannot be provided, then adequate nearby parking must be provided and maintained until direct access can again be restored. If during the course of the work, it is necessary to restrict access to certain driveways for an extended period of time, you must notify the affected residents, in writing, in accordance with section 7-1.03

At the end of any working day when work operations have obscured existing traffic striping, the striping must be restored via permanent reflective painting or other interim materials subject to the approval of the Engineer. Temporary delineation must be of the same color and type, including nighttime reflectivity as the markings obscured.

All open excavations must be adequately covered, barricaded and delineated against entry by pedestrians, bicyclists, animals, motorized vehicles and others potentially harmed at all times.

Where existing road signs conflict with the proposed work, advise the Engineer and relocate such signs to temporary or permanent locations as directed by the Engineer.

At the end of each day's work, and at other times when construction operations are suspended, all equipment and other obstructions must be removed from that portion of roadway open for use by public traffic. No longitudinal joint shall be left during non-working hours.

NOT FOR BIDDING PURPOSES

Traffic Control Plan

Submit the Traffic Control Plan (TCP) to the Engineer for review at least 7 working days prior to mobilization. The TCP must provide for access of emergency vehicles, and in the areas where detours around the construction are not available or feasible, the maximum traffic delay for non-emergency vehicles shall be 10 minutes. The TCP must conform to the following requirements:

1. The TCP must include a minimum of three signs posted 7 days before each road closure stating, "ROAD WILL BE CLOSED ON (DAY AND DATE) FROM _____ A.M. TO _____ P.M." Said signs must be compatible with a Caltrans Type C3 sign and must be professionally made. Detour signs must be provided to direct traffic around the construction area and must be compatible with a Caltrans Type C5 or C5A. Before manufacturing, the Engineer must have adequate time to review the TCP prior to approving all signs. In addition, a Caltrans Type C19 "Road Closed Ahead" sign must be posted minimum 300 ft. ahead of all sites.

2. Refer to the current "Manual of Uniform Traffic Control Devices," and the "Uniform Signs Chart," issued by the California Department of Transportation, incorporate all necessary signs and devices required for this contract.

3. Show order of work accomplished in such a manner as to provide access to all intersecting streets and adjacent properties whenever possible. If access to any property cannot be provided, then show adequate nearby parking which you must provide and maintain until direct access can again be restored

Show how you provide safe paths of travel for vehicles, pedestrians and bicycle traffic through the work zone for the various phases of work, including access to adjacent properties.

Review is solely for the purpose of determining the scope of the traffic control operations and general conformance with the requirements of this section. In no event shall such review be deemed to instill in Town a right to control or oversee the administration and management of the work by contractors, employees, representatives or agents. By reason of such review contractor shall in no way be relieved of its responsibilities and duties to perform and complete the work, including operation and maintenance of the facilities, in accordance with (1) generally accepted industry standards and (2) in accordance with all codes, laws, regulations, or other requirements, legal or otherwise, including but not limited to any standards contained or implied in this agreement.

Changeable Message Signs

In addition, starting a minimum of one week prior to commencement of traffic delay or road closure, the contractor shall provide one (1) electronic Changeable Message Sign (CMS) boards where shown below:

Butterflied at Arroyo 1

The CMS message boards shall remain active at each site until traffic is no longer impacted by the work.

The Town will install and maintain a second CMS at Butterfield and Suffield. Coordinate your work with theirs.

Lane Closures:

Except when a road closure is approved by the Engineer, one lane of traffic (minimum 12 feet per lane), must be open to vehicular traffic for the entire length of the project at all times.

Lane closures on Arroyo are permitted between 9:00 a.m. and 6:00 p.m. Monday through Friday.

Lane closures require a traffic control plan to be submitted 7 days in advance of the work. Only closures plans demonstrated to be in conformance with public safety and public convenience will be approved.

When a travel lane is used for interchangeable direction to traffic, you must provide flaggers at each street intersection to expedite the safe passage of public traffic through the work under one-way controls. Where flaggers are not visible to each other, they must be equipped with two-way radios for communication, or you must furnish a properly equipped and signed pilot car and driver to pilot traffic through those project areas where two flaggers are not visible to each other or at any time as directed by the Engineer. When directed by the Engineer and as necessary to protect the work, additional flaggers must be provided to control traffic entering and leaving side streets and no additional compensation shall be provided therefore.
Stopped public traffic must not exceed a period of ten (10) minutes when traffic is being handled by one-lane/alternating two-way control.

Lanes or streets must be closed long enough to protect the work. Do not open new HMA pavement to traffic until the surface temperature is below 130 degrees F. Contractor shall order work so that all lanes shall be opened to traffic by the times specified above without damaging the surface.

Road Closure and Notification:

No road shall be closed to traffic until immediately prior to the grinding operations or application of HMA. No road

NOT FOR BIDDING PURPOSES

shall be closed before 7:30 a.m. or after 6:00 p.m. No road shall be closed between 6:00 p.m. Friday through 7:30 a.m. Monday. Road closures require a traffic control plan to be submitted 7 days in advance of the work. Only closure plans demonstrated to be in conformance with public safety, public convenience and **weight limits** (on detour routes) will be approved. Failure to illustrate a safe closure with an efficient and functional detour will result in a denial of road closure and the Work must be carried out with a lane closure. No other road closures are permitted without written authorization from the Engineer

Initially (on the first working day) you must notify local authorities and Engineer of the need for road closure(s) and areas of construction delays. After the first working day, you must keep local authorities updated on any changes in the original closure and delay information. Keep the Engineer updated on road closure(s) and/or areas of construction delays daily.

Local authorities are defined as, but not limited to, Town of San Anselmo Police Department, California Highway Patrol, local Fire Department, United States Post Office, local waste management companies, public transportation, Emergency Response Companies and/or all businesses or regular users whose ability to perform their daily job will be affected by road closures, detours or general work by your forces.

Emergency Response vehicles are permitted to pass through the work area without delay at all times. Provide transition material at the vertical drops that will safely accommodate these emergency vehicles at all times. All other local authorities will be permitted to pass through the work area without delay at all times except during sealing or paving operations. Provide transition material at the vertical drops that will safely accommodate these vehicles at all times

Contractor must coordinate directly with local waste management company and shall not permit local waste management trucks to travel on a street between the start of grinding until 3 days after paving is complete. Schedule operations to ensure that the garbage is collected on the regularly scheduled day.

Contractor must notify Brookside Elementary School and residents within a closed section of road by door hanger of road closures stating the contractor's contact information, the date(s) of closure, and hours of closure. The door hangers must be delivered no later than ninety-six (96) hours prior to road closure. Prior to dissemination, the Engineer must approve the door hanger. For planning purposes, a road is considered closed if non-emergency vehicles are delayed, or delays are expected to be more than ten (10) minutes.

7 days ahead of an approved road closure, at each end of roads affected by closures, the Contractor must post on a sign post or barricade, an informational sign that includes the following information: Contractor's name and contact information, project information and duration of work. Sign lettering must be a minimum of 2-inches in height, legible, and subject to approval by the Engineer.

Order work so that you do not open new HMA pavement to traffic until the surface temperature is below 130 degrees F. Lanes or streets must be closed long enough to protect the work.

No Parking Signs:

Post NO PARKING signs seventy-two (72) hours in advance. Written notice, approved by the Engineer, must be forwarded to the San Anselmo Police Department prior to any posting. It shall be the responsibility of the Contractor to maintain signs and barricades overnight and on weekends.

While the minimum distance between signs must be 100 feet, the signs must be placed so that they are:

a. Visible/readable to any individual standing within 100 feet of a sign;
b. Visible/readable from any vehicle parked within 100 feet of a sign; or
c. As directed by the Engineer or Law Enforcement Agency.

NOT FOR BIDDING PURPOSES

Signs, once posted, must be maintained until no longer required and then salvaged. It shall be your responsibility to make sure that the signs remain posted until no longer required and are protected from vandalism or removal. If time between construction phases exceed two days, including nonworking days, all no parking signs must be removed. Signs shall not obstruct the sidewalk.

Once posted, notify the Engineer as to the location and limits of such signs, and contact the San Anselmo Police Department for a sign verification service. The San Anselmo Police Department will then, at their earliest convenience, dispatch an officer who will verify and log the location limits. No less than twenty-four (24) hours after said entry is made, autos may be towed from the location if they interfere with construction operations, under the immediate direction of a Police Officer, provided that the signs have been properly maintained. It will be your responsibility to arrange for the towing and removal of any vehicles which have not been removed by the owner and which interfere with any operations. Do not tow vehicles to a tow yard. Tow vehicles to the nearest street with available parking which is not subject to that day or the next day's work. Towing shall not be done or allowed unless the conditions of these specifications have been met. Towing of vehicles will be treated as extra work.

When entering or leaving roadways which bear public traffic, the construction vehicles and equipment, whether empty or loaded, must in all cases yield to public traffic.

^^

13 WATER POLLUTION CONTROL

Add to section 13-1.01A

You shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations that govern your operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

Under no circumstances, shall concrete wash water, water from sawcutting operations, material from striping and pavement marking removal, or any other contaminated water be allowed to enter the storm drain system or other drainage courses.

Unless arrangements for disturbance of areas outside the project limits are made by the Town and made part of the contract, it is expressly agreed that the Town assumes no responsibility whatsoever to you or any property owner with respect to any arrangements made between you and a property owner to allow disturbance of areas outside the project limits. Information in this section shall be included in any arrangement.

Add to section 13-1.01D(2):

You shall be responsible for penalties assessed or levied on you or the Town because of your failure to comply with the provisions in this section "Water Pollution Control," including, but not limited to, compliance with the applicable provisions of the Manuals, and Federal, State, and local laws, regulations and requirements as set forth therein. See "Retention of Funds" sub-section later in this special provision.

Penalties as used in this section shall include fines, penalties and damages, whether proposed, assessed, or levied against you or the Town, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, by governmental agencies or as a result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of the Manuals, or applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation or to remediate or correct violations.

NOT FOR BIDDING PURPOSES

Contractor must train employees/subcontractors on the water pollution prevention requirements contained in these provisions. The Contractor must inform all subcontractors of the water pollution prevention contract requirements and must include appropriate subcontract provisions to ensure that these requirements are met.

Add to section 13-2.01A:

It is anticipated that the project will disturb less than 5 acres of soil and have an 'erosivity waiver' and therefore a SWPPP would not be required unless triggered as described in Section 13-2.03.

Contractor shall prepare a Water Pollution Control Program.

Notwithstanding any other remedies authorized by law, the Town may retain money due to you under the contract, in an amount determined by the Town, up to and including the entire amount of Penalties proposed, assessed, or levied as a result of your violation of the Permit, the Manuals, or Federal or State law, regulations or requirements. Funds may be retained by the Town until final disposition has been made as to the Penalties. You shall remain liable for the full amount of Penalties until such time as they are finally resolved with the entity seeking the Penalties.

Retention of funds for failure to conform to the provisions in this section, "Water Pollution Control," shall be in addition to the other retention amounts required by the contract. The amounts retained from you for failure to conform to provisions in this section will be released for payment on the next monthly estimate for partial payment following the date when an approved WPCP has been implemented and maintained, and when water pollution has been adequately controlled, as determined by the Engineer.

When a regulatory agency identifies a failure to comply with the Permit and modifications thereto, the Manuals, or other Federal, State or local requirements, the Town may retain money due to you, subject to the following:

A. The Town will give you 30 days' notice of the Town's intention to retain funds from partial payments which may become due to you prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to you.

B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 9-1.16 of the Standard Specifications and these special provisions.

C. If the Town has retained funds, and it is subsequently determined that the Town is not subject to the entire amount of the Costs and Liabilities assessed or proposed in connection with the matter for which the retention was made, the Town shall be liable for interest on the amount retained for the period of the retention. The interest rate payable shall be 6 percent per annum.

During the first estimate period that you fail to conform to the provisions in this section, "Water Pollution Control," the Town may retain an amount equal to 25 percent of the estimated value of the contract work performed.

Replace Section 13-2.04 "Payment" with:

The contract lump sum price paid for **Water Pollution Control** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work required as specified here and in Section 13, including preparing the water pollution control plan and all work necessary for water pollution control, as shown on the plans, as specified in the Specifications, and as directed by the Engineer, and no additional compensation will be made therefor.

NOT FOR BIDDING PURPOSES

The Town pays you for Water Pollution Control as follows:

1. Total of 75 percent of the item total upon authorization of the Water Pollution Control Plan
2. Total of 100 percent of the item total upon Contract acceptance

Add to section 13-4.03C(3):

Unless authorized by the Engineer, stockpiling shall be limited to material necessary for the day's work. Propose designated stockpile areas of the project site, for approval by the Engineer.

Add to section 13-4.03D(3):

Perform washout of concrete trucks off site where discharge is controlled and not permitted to discharge into the storm drain system.

Add to section 13-4.03E(4):

Inspect vehicles and equipment arriving on-site for leaking fluids and promptly repair leaking vehicles and equipment. Drip pans must be used and replaced frequently enough to catch leaks. If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

Add to section 13-4.03F:

Clean and sweep roadways and on-site paved areas of all materials attributed to or invoiced in the work at the end of each working day and as directed by the Engineer. Do not use water to flush down streets in place of street sweeping.

^^

15 EXISTING FACILITIES

Add to section 15-1.01:

Existing Utilities

The location of all existing underground utilities may not be shown on the Plans. It is not the intent of the plans to show the exact location of existing or relocated utilities. Do not assume that all utilities have been identified on the plans. The Engineer assumes no responsibility therefor. You are responsible for verifying the actual location and depth in the field of all utilities.

Be cognizant of the existing overhead and underground utility lines in the proximity of the work area and take all precautions, as necessary, to not disturb these facilities.

NOT FOR BIDDING PURPOSES

Notify Underground Service Alert prior to any excavation. Call 811 and follow the USA North's California Excavation Manual and the specifications. Prior to starting an excavation, examine the excavation site for physical evidence (manholes, valve covers, water meters, fire hydrants, sewer cleanouts, storm drains, vaults, paved trenches, utility maintenance boxes, pole risers, trench cuts etc.) that would indicate the existence of underground facilities. You must excavate, as cautiously and prudently as possible.

Be cognizant of existing and outdated USA marking of abandon facilities. You are responsible for verifying that utilities are located and marked and for verifying the actual location and depth in the field of all utilities.

Where excavations are performed in the vicinity of underground utility mains and/or services, perform initial hand dug exploratory excavations to determine their exact depth and location. Exercise extreme care to avoid damage to all utility facilities. It is your responsibility to make repairs to any facilities damaged by your operation, at your cost. The Town of San Anselmo will not reimburse you for this work. If you cannot locate an underground facility whose presence is indicated on the plan or as marked by USA, or as otherwise indicated, you must notify the Engineer in writing.

Landscape Restoration

Hardscape features (fences, walkways, foot bridges, planters, etc.); trees, lawns, shrubbery, plants, flowers etc.; and irrigation lines that are not noted on the plans to be removed or relocated must be protected from damage or injury. If damaged or removed because of the Contractor's operations, they shall be restored or replaced to their original conditions. Broken irrigation lines must be temporarily repaired immediately upon their breakage and permanently repaired prior to completion of the work. Repairs and replacements must be at least equal to existing improvements.

Full compensation for Existing Facilities shall be considered as included in the various items of work and no separate payment will be made thereof unless otherwise noted.

Full compensation for Landscape Restoration shall be considered as included in the various items of work and no separate payment will be made therefor.

Full compensation for complying with all other provisions of this section shall be considered as included in the various contract items of work and no separate payment will be made therefor.

NOT FOR BIDDING PURPOSES

Replace section 15-1.03D with:

15-1.03D Cold Plane Asphalt Concrete

General

Notify businesses and homeowners forty-eight (48) hours in advance of grinding operations.

Pavement grinding operations must not commence until all existing traffic delineation and all street surface facilities/features including utility castings and boxes, survey monuments and benchmarks within the area have been "tied out/ referenced" by the Contractor and noted to the Engineer.

Protect concrete pavements and walks, curbs and bases, and other improvements adjacent to the operations with suitable materials. You are responsible for any damage caused by your employees or equipment and you must make necessary repairs. All damage caused by your operations must be repaired or replaced as required. The required grinding is to be performed without disturbing the existing curb and gutter which may be cracked and fragile. Damage to the existing curb and gutter resulting from operating the grinding machine or the "hand" clearing operations must be corrected, to the satisfaction of the Engineer, by you at your expense.

Any concrete gutters chipped by the pavement grinding operations must be epoxy patched or, removed and replaced. “Mason’s mix” shall not be permitted.

Cover drainage inlets and use linear sediment barriers to protect downhill receiving waters until sawcutting, grinding, sealing, and paving activities are completed and excess material has been removed.

Contractor shall layout the grind for the proposed subgrade per the project plans. Contractor shall use the plan cross sections as guidance for interpolating and setting grades for intermediate cross sections. Intermediate cross sections shall be laid out in the field at a maximum of 20’ intervals. Contractor shall spray paint proposed cut and fills and proposed crown slopes 48 hours prior to cold planing for approval by the Engineer.

Limits of grinding, as shown on the plans and as directed by the Engineer, must be marked by the Engineer prior to grinding operations. The contractor shall be responsible to notify the Engineer for marking of limits a minimum of 48 hours prior to cold planning.

No additional compensation shall be made for concrete grinding in excess of the limits marked or as shown on the plans unless so directed by the Engineer.

Do not use a heating device to soften the pavement.

The cold plane machine must be:

1. Equipped with a cutter head width that matches the planing width. If the cutter head width is wider than the cold plane area shown, submit to the Engineer a request for using a wider cutter head. Do not cold plane unless the Engineer approves your request.
2. Equipped with automatic controls for the longitudinal grade and transverse slope of the cutter head and:
   2.1. If a ski device is used, it must be at least 30 feet long, rigid, and a 1-piece unit. The entire length must be used in activating the sensor.
   2.2. If referencing from existing pavement, the cold planing machine must be controlled by a self-contained grade reference system. The system must be used at or near the centerline of the roadway. On the adjacent pass with the cold planing machine, a joint-matching shoe may be used.
3. Equipped to effectively control dust generated by the planing operation.
4. Operated so that no fumes or smoke is produced.
5. Equipment must be equipped with a conveyor system and the Contractor must concurrently load the pavement grindings into an adjacent truck
6. Equipment must meet all requirements of legally powered regulatory agencies including noise control standards.
7. Equipment must not produce excessive dust and must conform to the Standards of the Bay Area Air Quality Control Board. Pre-heating of the asphalt concrete must not be performed. The machine must be equipped with a water device for dust control. The grinding machine must have a side shield to prevent ground material from being thrown on the sidewalk.

Pavement Grinding must be in accordance with the applicable provisions of the specifications and shall involve: Grinding an adequate depth so the finished grinding surface is the depth below finished grade as shown on the plans, across the roadway between the lip of gutter and lip of gutter, or edge of pavement, with proposed cross slopes or as directed by the Engineer. Depth of grind shown on the plans is measured from the lip of gutter, and the work includes any material overlaid above the lip of gutter or edge of pavement and includes material in the gutter pan.

The final cut must result in a uniform surface conforming to the plans. The outside lines of the planed area must be neat and uniform. Planing asphalt concrete pavement operations must be performed without damage to the surfacing to remain in place.

NOT FOR BIDDING PURPOSES

The completed surface of the planed asphalt concrete pavement must not vary more than 0.02 foot when measured with a 12-foot straightedge parallel with the centerline. The transverse slope of the planed surface must not vary more than 0.03 foot from the straightedge when placed at right angles to the centerline.

Errors caused by overgrinding must be corrected by the Contractor at their expense to the satisfaction of the Engineer; this may include an asphalt leveling course.

In those areas where the existing asphalt pavement extends to the curb face over the gutter pan and is left after the grinding operation, the Contractor must clear this residue asphalt pavement to the curb face. The area requiring "hand" clearing must be that area between the edge of the grinding wedge left by operating the grinding machine to the curb face. The Contractor must then use suitable methods to clear residue asphalt concrete from the gutter pan (grinding lip to curb face).

After grinding and before paving, the contractor must walk the site with the Engineer to confirm the limits of dig out areas and identify and mark any additional locations.

NOT FOR BIDDING PURPOSES

TEMPORARY HMA TAPERS

Where transverse joints are planed in the pavement at conform lines no drop-off shall remain between the existing pavement and the planed area when the pavement is opened to public traffic. If Hot Mix Asphalt (HMA) has not been placed to the level of existing pavement before the pavement is to be opened to public traffic a temporary HMA taper must be constructed. HMA for temporary tapers must be placed to the level of the existing pavement, provide a smooth ride and tapered on a slope of 30:1 (Horizontal: Vertical) or flatter to the level of the planed area.

HMA for temporary tapers must be the same quality as the HMA used elsewhere on the project or must conform to the material requirements for minor HMA. HMA for tapers must be compacted by any method that will produce a smooth riding surface. Temporary HMA tapers must be completely removed, including the removal of loose material from the underlying surface, before placing the permanent surfacing. The removed material must be disposed of outside the highway right of way in conformance with specifications.

No vertical drop along the longitudinal joints shall be left untreated prior to traffic use or at the end of each work shift. The Contractor shall place temporary cutback asphalt over construction paper at paving conforms immediately after performing the grinding operation. The cutback asphalt shall be placed to provide a smooth ramp for vehicular and pedestrian traffic. The Contractor shall maintain the cutback until overlay work has begun at which time all cutback asphalt and construction paper shall be removed and disposed of.

TEMPORARY PAVEMENT DELINEATION

Temporary pavement delineation must be furnished, placed, maintained, and removed in conformance with the provisions in Section 12 of the specifications. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the California MUTCD or as relieving the Contractor from the responsibilities specified in Section 7-1.04, "Public Safety," of the specifications.

When the work causes obliteration of pavement delineation, temporary or permanent pavement delineation must be in place before opening the traveled way to public traffic.

Work necessary, including required lines or markers, to establish the alignment of temporary pavement delineation must be performed by the Contractor. Surfaces to receive application of paint or removable traffic tape temporary pavement delineation must be dry and free of dirt and loose material. Temporary pavement delineation must be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation, or as determined by the Engineer.

Painted pavement markings used for temporary delineation must conform to Section 84-3, "Painted Traffic Stripes and Pavement Markings," of the Standard Specifications, except for payment.

Temporary pavement delineation shall be used until the permanent delineation is in place, and for a minimum of 5 and a maximum of 14 days. Before the end of the 14th day, the permanent delineation shall be placed.

SCHEDULING AND NOTICE

Unless otherwise approved by the Engineer, contractor must schedule operations such that not more than (2) two calendar days elapse between the time when streets are cold planed, and the permanent surfacing is placed.

REMOVAL AND DISPOSAL

The material planed from the roadway surface, including material deposited in existing gutters or on the adjacent traveled way, become the property of the Contractor and must be disposed of outside the highway right of way in conformance with specifications. Removal operations of cold planed material must be concurrent with planing operations and follow within 50 feet of the planer, unless otherwise directed by the Engineer.

Measurement

Cold plane asphalt concrete pavement is measured by the square yard. The quantity to be paid for will be the actual area of surface cold planed irrespective of the number of passes required to obtain the depth shown on the plans, or the volume of asphalt pavement above the finish grade.

Payment

The contract price paid per square yard for **Cold Plane Asphalt Concrete (0"-3.5")**, shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in cold plane asphalt concrete surfacing, including disposing of planed material, protecting improvements, notification, furnishing the HMA for constructing temporary HMA tapers, maintaining, removing, and disposing of temporary HMA tapers, placing, maintaining, removing and disposing of temporary pavement delineation, as specified in the Standard Specifications and these special provisions and as directed by the Engineer, and no additional compensation will be allowed therefor.

NOT FOR BIDDING PURPOSES

Replace section 15-1.03E with:

15-1.03E Utility Work

Utility companies reserve the right to perform the work using their own forces after the contract is awarded. You must notify the utility agencies prior to start of construction for any coordination effort and to determine if the utility owners will perform the work using their own forces. Advise the Town of the utility owner's response prior to the start of construction. If the owners chose to use their own forces, then prior to placing of asphalt concrete, notify utility agencies a minimum of five (5) working days in advance of paving operations so that the affected agencies can be prepared to reset covers to grade following paving.

Contact each utility company and obtain a response:

PG &E:	MJMQ@pge.com ERCL@pge.com
MMWD	amitchell@marinwater.org eirish@marinwater.org
RVSD	khayden@rvsd.org dgavallos@rvsd.org

AT&T mm1429@att.com

Advise the Town if assistance with additional contact information is necessary.

All manhole and other utility covers encountered in the area of HMA must be carefully referenced out using spray chalk or similar non-permanent marking media prior to disturbance by the Contractor. Notify the Engineer that the referencing is complete at least 2 days prior to work that may disturb the utility covers. Using the reference markings, the locations of the covers must be painted on the pavement surface immediately after paving to assure they can be found in an emergency.

Covers must be adjusted so that there will not be any perceptible difference in elevation between the finished pavement surface and the cover. The Engineer shall be the sole judge of the acceptable degree of smoothness of passage of a motor vehicle over the adjusted covers.

Portland cement concrete used for adjusting covers must be Class B, 5 sack minor concrete conforming to the provisions in State Standard Specification Section 51, "Concrete Structures," and must be 1-inch maximum grading specified in Section 90-1.02C(4)(d), "Combined Aggregate Grading" of the specifications.

Mortar used in resetting manhole covers must conform to the requirements of the specifications, including Section 51.

Precast concrete elements must conform to the requirements of the specifications, including Section 70-4.

Salvaged materials which are undamaged may be reinstalled as directed by the Engineer. Structures built of cast-in-place or precast concrete and brick or vitrified clay pipe parts must be replaced in kind, unless otherwise permitted by the owners of the facilities.

Dirt, rocks or debris shall not be permitted to enter sewer or storm drain lines. When manhole adjustment involves excavation or concrete removal, a temporary cover must be placed to prevent entry of material into the manhole and sewer pipe.

During sealing or paving operations, all surface structures must be protected, and no adhesive material shall be permitted to fill the joint between the frame and cover.

Cooperate with utility companies working within and around the project area. In the event a utility company elects to have you perform the work by written confirmation, you will be responsible for adjusting the covers. You must perform the work according to said utility company's standards.

If work by others causes a delay in your operation, you will be granted a time extension but shall not be entitled to a Delay per Section 8-1.07 of the State Standard Specifications due to the progress or operations of others.

NOT FOR BIDDING PURPOSES

WATER VALVE

Water valve covers must be adjusted to grade per Marin Municipal Water District Standards, as shown on the plans, and as directed by the Engineer.

GAS VALVE

Water valve covers must be adjusted to grade per Pacific Gas and Electric Standards, as shown on the plans, and as directed by the Engineer.

SANITARY SEWER MANHOLES

Sanitary Sewer Manholes must be adjusted to grade per Ross Valley Sanitary Sewer District, Sanitary District No. 1 of Marin County Standard Specifications and Drawings, as shown on the plans, and as directed by the Engineer.

STORM DRAIN MANHOLES

Storm Drain Manholes must be adjusted to grade as shown on the plans and as directed by the Engineer.

IDENTIFYING, REPLACING MONUMENT, AND ADJUSTING MONUMENT COVER

Protect all monuments whether noted on the plans or not. Monuments that will be disturbed must be identified by the Contractor to the Engineer, for a town hired surveyor to set reference points to reestablish the monument. Contractor must provide at least 10 days' notice to the Engineer of any monuments that will be disturbed. No monuments shall be removed without the prior agreement of the Engineer nor before the surveyor has set reference points to reestablish the monument. Monuments that will be disturbed must be removed during the removal of the existing pavement. After the pavement is reconstructed, disturbed monuments must be replaced in the same location using the same bronze plaque and cast-iron frame and cover. After the pavement is reconstructed, for monuments that are protected in place, the monument cover must be adjusted so that there will not be any perceptible difference in elevation between the finished pavement surface and the cover. Monument Covers must be adjusted to grade per Marin Uniform Construction Standards, as shown on the plans and as directed by the Engineer.

Marin Municipal Water District Cathodic Protection Testing Station shall be measured and paid as Adjust Water Valve.

Pacific Gas and Electric Cathodic Protection Testing Station (G5) shall be measured and paid as Adjust Gas Valve.

Storm Sewer Manhole and Sanitary Sewer Manhole shall be measured and paid for as Adjust Sewer Manhole.

Utility Boxes for sewer clean outs and water meters located in the pavement section will be measured and paid for as Adjust Gas Valve.

Resetting and adjusting utility boxes to grade within the limits of new concrete (sidewalk and driveway) is considered as included in the contract price paid for those items, and no separate payment will be made therefor.

The contract unit price paid for **Adjust Water Valve, Adjust Sewer Manhole** and **Adjust Gas Valve** includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in lowering and raising frames and covers to grade, complete in place, including referencing, concrete and HMA (Type A), as shown on the plans, as specified in specifications, and as directed by the Engineer, an no additional compensation will be made therefor.

NOT FOR BIDDING PURPOSES

Add to section 15-1.04:

Referencing, and removing existing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation, and no separate payment will be made therefor.

^^

DIVISION III EARTHWORK AND LANDSCAPE

^^

17 GENERAL

Add to Section 17-2.01:

Clearing and grubbing consisting of removal and disposal of objectionable material including existing weeds, brush, shrubs, tree limbs and other unsuitable material from within the construction area of the project.

Do not injure standing trees, plants, and improvements whether shown to be protected or not. Unless otherwise specified on the plans or in writing by the Engineer, you must protect trees as specified in the Town Municipal Code at your expense.

Identify overhanging tree limbs and roots that conflict with the work. Verify and obtain approval from the Engineer prior to any cutting of any trees, tree limbs, or tree roots.

Trees, bushes, and shrubs to be removed must be removed or pruned in such a manner as to not injure standing trees, plants and improvements which are to be preserved.

The limits of clearing and grubbing must be of sufficient area and depth and height to complete the work as shown on the plans and described in the specifications.

Add to Section 17-2.03B:

Clear the area above original ground of all objectionable material including vines, logs, upturned stumps, downed trees, plants, brush, grass, weeds, concrete, asphalt dikes and masonry.

Unless otherwise specified, all materials as shown on the plans to be removed, or as field marked and as directed by the Engineer to be removed must be disposed of outside the highway right of way, in accordance with the specifications, and outside the project limits. The contract work area must be left with a neat and finished appearance.

Trees, shrubs and bushes designated for removal must be clearly identified by the contractor before removal operations begin. Only trees shown on the plans or so designated by the Engineer shall be removed. Trees, shrubs and bushes will be removed in a manner consistent with the health and safety of the tree climbing crew, the general public and private property. Felled trees, shrubs, and bushes may be cut into section and removed from the site. All branches leaves and vegetative debris must be reduced to chips. All resulting stumps are to be routed to a minimum of twelve (12) inches below the soil level unless directed otherwise by the Engineer. All tree, shrub, and bush rounds, branches, chips, debris and the like must be completely removed and disposed of outside the highway right of way in accordance with the specifications. Wood and vegetation debris and residue must be removed as it is generated. Under no circumstances may chips or other combustible materials be disposed of onsite. If you fail to remove excess debris promptly, the Town reserves right to cause same to be removed at your expense

Do not trim or prune branches greater than 3 inches in diameter that extend over the roadway, even if they limit your ability to perform certain activities. Sequence your construction activities to avoid them.

NOT FOR BIDDING PURPOSES

Other tree branches that extend over the roadway and hang within 15 feet of finished grade may be cut. Cut off branches 4 inches from the trunk under section 20-1.03D.

Replace section 16-2.04 with:

Sawcutting and Roadway Excavation are considered as included in the price paid for Clearing and Grubbing.

The contract lump sum (LS) price paid for **Clearing and Grubbing** shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in clearing and grubbing as shown on the plans and described in the specifications, including limbing, shrub, small tree and bush removal and disposal, sawcutting, roadway excavation, storm drain pipe removal including excavating, disposal, trenching, bedding, pipe removal, and backfilling as shown on the plans, as specified in the specifications, and as directed by the Engineer.

Full compensation for developing water supply and applying water, including water used for dust control, shall be considered as included in the various items of work and no separate payment will be made thereof.

^^^

19 EARTHWORK

Replace section 19-2.04 with:

Roadway excavation shall not be measured or paid for separately. Full compensation for roadway excavation, including sawcutting, is considered as included in the price paid for Clearing and Grubbing, and no separate payment will be made therefor.

^^^

20 LANDSCAPE

Add to Section 20-1.01A

Pesticides are limited to those approved for use in the Town's Integrated Pest Management Guide http://www.townofsananselmo.org/documents/14/IPM.PDF

NOT FOR BIDDING PURPOSES

^^

DIVISION V SURFACING AND PAVEMENTS

^^

Replace section 38 with:

38 ASPHALT CONCRETE REPAIR

38-1.01 GENERAL

Digout (6") shall consist of cold planning or sawcutting and excavating; and removal of existing asphalt concrete to the depth shown on the plans, re-compaction of sub-grade to 95 percent relative compaction, and replacement with HMA (Type A). Hot mix asphalt concrete must be placed with a maximum lift of three (3) inches. The final layer must not be less than two (2) inches in compacted thickness and no greater than three (3) inches. Each lift must be compacted to 95 percent relative compaction. Areas to be repaired shall be marked by the Engineer after cold planing is complete.

Surfacing and base must be removed without damage to surfacing and base that is to remain in place. Damage to pavement, which is to remain in place, must be repaired to a condition satisfactory to the Engineer. The damaged pavement must be removed and replaced with new asphalt concrete if ordered by the Engineer. Repairing or removing and replacing pavement damaged outside the limits of pavement to be replaced, must be at the Contractor's expense and will not be measured nor paid for.

The accumulation of water in excavated areas must be prevented by means of pumping or other approved methods.

Excavation shall be carried to the exact depth indicated on the drawing or as specified and depth shall be measured from the planed subgrade surface. Should the Contractor, through his negligence or other fault, excavate below the designated lines, he must replace such excavations with approved materials at his own expense.

A tack coat must be applied to all surfaces prior to placement of new hot mix asphalt.

If significant cracking and deformation is observed that indicates base failure after the pavement is removed; such areas shall be marked by the Engineer and repaired as specified herein.

When subgrade is exposed during the Asphalt Concrete repair operation, the Contractor shall compact the soil subgrade and remove any broken concrete, as directed by the Engineer. The Contractor shall exercise care to avoid unnecessary deterioration of the existing subgrade.

If unsuitable materials or unstable subgrade is encountered, the contractor shall remove the material as directed by the Engineer. Removal of unstable subgrade and the replacement HMA shall be as directed by the Engineer and shall be paid for as extra work.

All grindings and other waste material must be disposed of outside the highway right of way in conformance with specifications. Removal operations of cold planed material must be concurrent with planning operations.

38-1.02 MATERIALS

NOT FOR BIDDING PURPOSES

An asphaltic emulsion tack coat (paint binder) must be used consisting of emulsified asphalt, Type **SS1h** conforming to the requirements of Section 94.

Aggregate must conform to the requirements of Section 39.

38-1.03 SUBMITTALS

Submit HMA design at the preconstruction conference to be preapproved by the Town.

38-1.04 PAYMENT

The contract price paid per square foot for **Digout (6")** shall include full compensation for all labor, materials, tools, equipment, and incidentals and for doing all work involved in constructing digout (6"), including cold planning, sawcutting, and removal of AC, off-site disposal, compaction, tack coat, and hot mix asphalt, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer. The depth of the digout shall be 6 inches below the planed surface.

39 HOT MIX ASPHALT

Replace section 39 with section 39 from Caltrans Standard Specifications 2010 included in the Appendix to these Specifications and as modified by the following:

Delete the 2nd sentence of the 1st paragraph of 39-1.02B

Add to section 39-1.02B:

Tack Coat (paint binder) must be diluted SS-1h emulsion in conformance with Section 94 or the Caltrans Standard Specifications.

Provide proposed dilution weight ratio prior the preconstruction meeting.

Full compensation for furnishing and applying the tack coat shall be considered as included in the contract unit price paid per ton for Hot Mix Asphalt and no separate payment will be made therefor.

Add to section 39-1.02C:

Asphalt Binder must comply with Section 92 or the Caltrans Standard Specifications. The grade of asphalt binder for the HMA must be PG-64-16.

Add to section 39-1.02E:

Aggregate used in HMA (Leveling Course) and Speed Cushion must comply with 3/8-inch Type A.

Aggregate used in HMA (Type A) must comply with the 1/2-inch Type A.

Add to section 39-1.11:

Finish surface of the wearing course must be thoroughly compacted, smooth, and free from ruts, humps, depressions, cold joints, or other irregularities.

Finish paving must conform to slopes, lines, and finish grades as shown on the plans and as directed by the Engineer, and must drain properly.

Where adjacent surfaces are intended to be flush (as at concrete gutters, walks, and paving), they must smoothly

NOT FOR BIDDING PURPOSES

conform at all joints.

Ridges, indentations, and other objectionable marks left in the surface of the HMA concrete by paving or rolling equipment must be eliminated by rolling. The use of equipment that leaves ridges, indentations, or other objectionable marks in the HMA concrete must be discontinued, and other acceptable equipment must be employed.

Finish paving must conform to finish elevations within plus or minus 0.01 of a foot and must be level to within plus or minus 1/4 inch in 10 feet when measured with a 12 foot straightedge in any direction.

Place additional HMA along the pavement's edge to conform to road connections, private drives, and driveways. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

Where cold joints are indicated or approved by the Engineer as necessary, cut back the placed and compacted cold asphalt a minimum of three inches with a concrete or masonry power saw, so that a vertical face of compacted full thickness material is exposed. Treat this surface with a tack coat before proceeding with the placement of new HMA concrete surfacing.

NOT FOR BIDDING PURPOSES

Replace section 39-1-12A with:

Test pavement smoothness using a 12-foot straightedge.

Replace section 39-6 with:

Tack coat is included in the price paid for Hot Mix Ashpalt.

The quantity of Hot Mix Asphalt (Type A) and Hot Mix Asphalt (Leveling Course) shall be determined from certified weigh master tickets (tickets) delivered to and signed by the Engineer at the work site on the day of delivery. Drivers shall submit their ticket to the designated contractor representative or the Engineer upon each arrival to the site. Submittal of multiple tickets at once will not be accepted. The Engineer shall be supplied with a copy of all tickets at the end of each day.

The contract prices paid per ton for **Hot Mix Asphalt (Leveling Course) and Hot Mix Asphalt (Type A)** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in producing, placing, and quality control testing of hot mix asphalt concrete, complete in place, as shown on the plans, as specified in the specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

The contract unit price paid for **Speed Cushion** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in producing, placing, and quality control testing of hot mix asphalt concrete necessary to create a speed cushion, complete in place, including grinding and tack coat. as shown on the plans, as specified in the specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

The school drop off area and AC driveways are measured and paid for as **Hot Mix Asphalt (Type A).**

^^

DIVISION VI STRUCTURES

^^

51 CONCRETE STRUCTURES

Add to Section 51-7.01A:

Catch basins, storm drain manholes, and drop inlets are classified as minor structures.

Add to Section 51-7.01B:

Comply with the specifications for minor concrete, except the following:

1. Minor Concrete must a minimum of 6 sacks of cement per cubic yard.

Add to Section 51-7.01D:

Excavation and backfill for and around a minor structure is included in the payment for that minor structure.

The contract unit price paid for **Minor Structure (Catch Basin (Type C)), Minor Structure (Catch Basin (Type A)), Minor Structure (SDMH (Type A)),** and **Minor Structure (Drop Inlet)** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing minor structure complete in place, including sawcutting, excavation, removal, forming and placing concrete, repair, backfill, and compaction, as shown on the plans, as specified in the specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

NOT FOR BIDDING PURPOSES

^^

DIVISION VII DRAINAGE FACILITIES

^^

64 PLASTIC PIPE

Add to Section 64-2.04

Payment includes excavation, furnishing and placing backfill, dewatering, trench shoring where required, and all other work to completely install pipe.

Payment includes installing CDF backfill as shown on the plans.

The contract unit price paid for **Plastic Pipe (15" HDPE)** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing plastic pipe complete in place, including cutting, potholing, trenching and removal of existing materials, working around existing crossing utilities, removing existing culverts, installing new pipe, splicing or connecting pipe (to any new or existing pipe, turning structure, catch basin or headwall), chipping away concrete to connect new culvert to existing pipe, turning structure, catch basin or headwall, grouting

connections made to new or existing turning structure and headwalls, removal of existing extension pipes, bedding, backfill, and compaction, as shown on the plans, as specified in the specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTIOIN

^^

73 CONCRETE CURBS AND SIDEWALK

Add to section 73-1.01:

Minor concrete work must comply with Drawing No. 100, 105, and 110 from the Marin County Uniform Construction Standards, as modified by these Specifications.

Add to end of second paragraph in section 73-1.01:

Steel dowel bars connecting new curb and sidewalk to existing or previously poured or existing concrete must be epoxy coated complying with section 40-1.02C(3). The dowel bar must be installed complying with section 40-1.03D except exposed portion need not be lubricated.

Replace 1st paragraph of section 73-1.02A with:

Comply with section 90-2 "Minor Concrete" except as follows:

1. For all miscellaneous concrete work except valley gutters and driveways, cementitious material content of concrete must be at least 505 lb/cu yd.
2. For valley gutters and driveways, cementitious material content of concrete must be at least 590 lb/cu yd.
3. Concrete shall contain 2 lb/cu yd of lampblack, or equivalent.

Add to section 73-1.03A:

If new curb, sidewalk or driveway is constructed adjacent to existing curb, sidewalk or driveway, dowel the existing concrete to the new concrete with #4 epoxy-coated reinforcing bars as shown.

New work adjacent to existing shall match the existing in color and texture as closely as possible.

Add to section 73-1.03B:

Backfill and compact with Class II aggregate base as needed to obtain grade. Class II aggregate base shall be compacted to 95% relative compaction.

NOT FOR BIDDING PURPOSES

Add to section 73-1.04:

The cost of furnishing and installing bar reinforcement is included in the price paid for that minor concrete bid item.

The cost of furnishing and installing aggregate base is included in the price paid for that minor concrete bid item.

Replace section 73-2.01 with:

Section 73-2 includes specifications for constructing curbs and valley gutters.

Add to section 73-2.03A:

Sawcut, demolish, and remove one (1) foot asphalt concrete in front of the lip of gutter, eight (8) inches deep. Paving of one (1) foot wide by 6-inch deep HMA plug is included in the price paid for Minor Concrete (Curb and Gutter). Leave the HMA conform 2-inches below finish grade in anticipate of final overlay.

Prior to final acceptance, as directed by the Engineer, water test curbs with gutters on slopes of 0.75% or flatter and paved surfaces to verify proper drainage. Any ponding of water greater than 0.25 inch depth will be considered as evidence of poor work techniques and must be corrected by removing and replacing those portions of curb and gutter as necessary to comply with the requirements of this special provision, at no additional expense to the City.

Add to the 7th paragraph of section 73-2.03B:

Additionally, attain a smooth finish on the back side of any curbs that will be left exposed.

Replace section 73-2.04 with:

Lengths of curbs and/or gutters at drainage structures, designated as aprons and transitions on the plans, will not be measured. Payment for constructing aprons and transitions is included in the payment of the drainage minor structure

Curbs and/or gutters measurements will include curb transitions and depressions along driveways and curb ramps.

The contract price paid per lineal foot for **Minor Concrete (Curb and Gutter)** and per square foot for **Minor Concrete (Valley Gutter)** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing minor concrete complete in place, including furnishing and placing concrete, rebar, and aggregate base, as shown on the plans, as specified in the specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

Add to section 73-3.03:

At intersection curb returns, all sidewalk and curb ramps must be 6” in depth concrete.

Do not deviate the shape and design of curb ramps and driveways with sidewalk from the standard plans unless noted on the project plans or approved by the Engineer. Do not free form these facilities.

For new curb ramps, detectable warning surfaces shall be prefabricated tiles set directly in newly poured concrete; surface applied tiles or stamped into surface detectable warning surfaces will not be

NOT FOR BIDDING PURPOSES

allowed.

Replace "Not Used" in section 73-3.04 with:

Driveways, island paving, curb ramps, and sidewalks which are contiguous with curb will be measured from a point 6 inches behind the face of curb.

The contract price paid per square foot for **Minor Concrete (Sidewalk)** and **Minor Concrete (Driveway Apron)** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing minor concrete complete in place, including furnishing and placing concrete, rebar, and aggregate base, as shown on the plans, as specified in the specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

No deduction in quantities of minor concrete (sidewalk) will be made for utility covers and portions of inlets behind the projected back of curb line.

Replace the first paragraph in section 73-10.03 with:

The exact limits of curb and sidewalk removal will be as directed by the Engineer.

Before removing a portion of monolithic concrete curb, sidewalk or pavement, sawcut to the full depth of the existing concrete at the removal limit line.

Join all new concrete curb and sidewalk to existing concrete curb, pavement and sidewalks with dowels as shown.

^^

DIVISION IX TRAFFIC CONTROL FACILITIES

^^

81 MISCELLANEOUS TRAFFIC CONTROL DEVICES

Add to section 81-3.03A:

Blue reflective markers are presently being used to mark locations of fire hydrants at all sites. You are responsible for referencing and replacing those markers. At locations where a fire hydrant is present, and a blue reflective marker is displaced by your activities, place a blue reflective marker as directed by the Engineer.

Replace section 81-3.04 with:

Full compensation for placing blue reflective marker must be considered as included in the various contract items of work and no separate payment will be

NOT FOR BIDDING PURPOSES

^^

84 MARKINGS

Add to Section 84-2.01A:

Pavement markings and Striping must be thermoplastic as shown on the plans or as indicated in these Specifications. You are responsible to record the location and type of all existing legends (pavement markings) and striping, in advance of construction operations. You shall use enough reference points necessary to accurately replace the delineation to its original location or as directed by the Engineer. All legends, striping, and markings must be replaced in kind in their original locations except as shown on the plans and as directed by the Engineer.

Restore, repair, and re-stripe existing pavement markings and striping damaged or coated with materials from your operations at your cost.

Pavement markings and striping must be completed no more than 10 days after the paving has been completed. You must maintain temporary delineation until this has been completed.

NOT FOR BIDDING PURPOSES

Replace paragraph one of section 84-2.02B with:

Thermoplastic material shall be free of lead and chromium and shall conform to the requirements in State Specification PTH-02ALKYD.

Add to Section 84-2.03A:

Before the permanent traffic stripes or pavement markings are applied, provide "cat-track" marking layout for review and approval of the Engineer. Changes, if any, to the marking layout as a result of the Engineer's review shall be your responsibility. If you fail to obtain the Engineer's approval of the marking layout prior to the permanent marking installation, changes to the permanent markings as required by the Engineer, including removal and replacement, shall be your responsibility.

Add to Section 84-2.03C(1):

Thermoplastic traffic stripes must be applied at the minimum thickness and application rate as specified below. The minimum application rate is based on a solid stripe of 4 inches in width.

Minimum Stripe Thickness (inch)	Minimum Application Rate (lb/ft)
0.079	0.27

Delete the 3rd, 4th, and 5th paragraph of 84-2.04

Add to section 84-2.04:

Thermoplastic traffic stripes will be measured by the linear foot regardless of the number of individual stripes comprising the detail (e.g. Detail 29 placed between Station 1+00 and Station 2+00 will be measured as 100 linear feet even though it consists of 400 linear feet of stripe).

The contract price paid per square foot for **Thermoplastic Markings (White)** and per lineal foot of **Thermoplastic Traffic Stripe (Detail 21)** shall including full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes and

pavement markings, complete in place, including establishing alignment for stripes and layout work, as shown on the plans, as specified in the Specifications, and as directed by the Engineer, and no additional compensation will be allowed therefor.

Replace 84-9.04 with:

Payment for remove traffic stripe and pavement markings is considered as included in the various contract items and no separate payment will be made therefor.

^^

DIVISION XI MATERIALS

^^

96 GEOSYNTHETICS

Replace the table in section 96-1.02X with:

Property	Test	Requirement
Mass per unit Area, ounces per square yard, min	ASTM D 5261	3.7
Grab tensile strength 25-mm grip, 1-inch grip, pounds, min. in each direction	ASTM D 4632	200
Elongation at break, percent max	ASTM D 4632	<5
Melting Point, ° F, min	ASTM D 276	425
Breaking Force lb/2 inches, min	ASTM D 5035	45

NOT FOR BIDDING PURPOSES

Replace section 96-1.03 with:

This work shall consist of furnishing and placing Paving Mat as shown on the Plans and as described in these Special Provisions.

Prior to placing fabric, remedial work and the Leveling Course shall be complete. Following the surface preparation the pavement surface shall be clean (free of foreign matter and surface contaminants), dry and the pavement temperature above 40°F and rising.

The asphaltic binder shall be PG-64-16 and sprayed uniformly at the rate recommended by the manufacturer (**minimum of 0.20 gallons per square yard**) and shall have a minimum temperature of 300°F.

Transverse joints shall be lapped by 4 inches minimum width and longitudinal joints shall be lapped by 2 inches minimum. Transverse joints shall be shingled in the direction of the paving to prevent edge pick-up by the paver. The fabric shall be laid by mechanical means or by hand with sufficient tension to eliminate wrinkles. As directed by the Engineer, if fabric folds exist or wrinkles 1/2 inch in height or greater exist, the fabric shall be slit and allowed to lie flat.

All fabric placed in a day shall be paved over the same day. Placement of fabric shall be closely followed by the paving operation, unless approved by the Engineer. **Public traffic shall not be allowed on the bare engineered paving mat.** Fabric shall not be placed under overlays of less than 1.5” of compacted thickness in the 1st lift

The Contractor shall furnish a Certificate of Compliance in accordance with the provisions of Section 6-1.07, "Certificate of Compliance" of the Standard Specifications.

Replace section 96-1.04 with:

Paving Mat shall be measure by the square yard of pavement covered.

The contract price paid per square yard of **Paving Mat** shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in providing and placing fabric, compete in place, including preparation and asphaltic binder, as shown on the Plans, as specified in the Specifications, and as directed by the Engineer.

NOT FOR BIDDING PURPOSES

APPENDIX A

PH #	AC/CONCRETE	BASE	TP	PIPE TYPE	PIPE TYPE
1	8" AC	All	22"	Corrugated	Storm
2	8" AC		64"	Plastic	Sewer
3	8" AC		22"	3/4" Stl	gas
4	8" AC		29"	3/4 Copper	water
5	8"		14"	3/4 Copper	Water
6	8"		25"	Plastic Sewer	gas 18" Stl
7	8"		16"	Copper	water
8	8		18"	3/4 Stl	gas
9	8		26"	6" Stl	water
11	8"		55" To Clean Rock		Sewer main
12	8"		26"	Cast iron	Water main
13	8"		26	" " main	water
13	8"		[illegible]	Water Service	2" PL Did not Find Service
14	8"		23" Gas 3/4 PL	water main [illegible]	Service 29"
15	8"		18"	Gas [illegible]	
15	8"		24"	Cast iron	

NOT FOR BIDDING PURPOSES

APPENDIX B

(COPY OF SECTION 39, CALTRANS STANDARD SPECIFICATIONS, 2010.)

39 HOT MIX ASPHALT

39-1 GENERAL

39-1.01 GENERAL

39-1.01A Summary

Section 39-1 includes general specifications for producing and placing HMA by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.

HMA includes one or more of the following types:

1. Type A
2. Type B
3. OGFC, including HMA-O, RHMA-O, and RHMA-O-HB
4. RHMA-G

The HMA construction process includes one or more of the following:

1. Standard
2. Method
3. QC/QA

39-1.01B Definitions

coarse aggregate: Aggregate retained on a no. 4 sieve.

fine aggregate: Aggregate passing the no. 4 sieve.

supplemental fine aggregate: Aggregate passing the no. 30 sieve, including hydrated lime, portland cement, and fines from dust collectors.

39-1.02 MATERIALS

39-1.02A Geosynthetic Pavement Interlayer

Geosynthetic pavement interlayer must comply with the specifications for pavement fabric, paving mat, paving grid, paving geocomposite grid, or geocomposite strip membrane.

39-1.02B Tack Coat

Tack coat must comply with the specifications for asphaltic emulsion or asphalts. Choose the type and grade.

Notify the Engineer if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not exceed 1 to 1.

Measure added water either by weight or volume in compliance with section 9-1.02 or you may use water meters from water districts, cities, or counties. If you measure water by volume, apply a conversion factor to determine the correct weight.

With each dilution, submit:

1. Weight ratio of water to bituminous material in the original asphaltic emulsion
2. Weight of asphaltic emulsion before diluting

NOT FOR BIDDING PURPOSES

3. Weight of added water
4. Final dilution weight ratio of water to asphaltic emulsion

39-1.02C Asphalt Binder

Asphalt binder in HMA must comply with the specifications for asphalts or section 39-1.02D.

Asphalt binder for geosynthetic pavement interlayer must comply with the specifications for asphalts. Choose from Grades PG 64-10, PG 64-16, or PG 70-10.

39-1.02D Asphalt Rubber Binder

39-1.02D(1) General

Use asphalt rubber binder in RHMA-G, RHMA-O, and RHMA-O-HB. Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. CRM

The combined asphalt binder and asphalt modifier must be 80.0 ± 2.0 percent by weight of asphalt rubber binder.

39-1.02D(2) Asphalt Modifier

Asphalt modifier must be a resinous, high flash point and aromatic hydrocarbon and must have the values for the quality characteristics shown in the following table:

Asphalt Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Value
Viscosity, m^2/s (x 10^{-6}) at 100 °C	ASTM D 445	X ± 3 [a]
Flash point, Cleveland Open Cup, °C	ASTM D 92	207 min
Molecular analysis		
Asphaltenes, percent by mass	ASTM D 2007	0.1 max
Aromatics, percent by mass	ASTM D 2007	55 min

[a] The symbol "X" is the proposed asphalt modifier viscosity. "X" must be from 19 to 36. A change in "X" requires a new asphalt rubber binder design.

NOT FOR BIDDING PURPOSES

Asphalt modifier must be from 2.0 to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder.

39-1.02D(3) Crumb Rubber Modifier

CRM consists of a ground or granulated combination of scrap tire crumb rubber and high natural rubber. CRM must be 75.0 ± 2.0 percent scrap tire rubber and 25.0 ± 2.0 percent high natural rubber by total weight of CRM. Scrap tire crumb rubber must be from any combination of automobile tires, truck tires, or tire buffings.

Sample and test the scrap tire crumb rubber and high natural rubber separately. CRM must have the values for the quality characteristics shown in the following table:

Crumb Rubber Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Value
Scrap tire crumb rubber gradation (% passing no. 8 sieve)	LP-10	100
High natural rubber gradation (% passing no. 10 sieve)	LP-10	100
Wire in CRM (% max.)	LP-10	0.01
Fabric in CRM (% max.)	LP-10	0.05
CRM particle length (inch max.) [a]	--	3/16
CRM specific gravity [a]	California Test 208	1.1–1.2
Natural rubber content in high natural rubber (%) [a]	ASTM D 297	40.0–48.0

[a] Test at mix design and for certificate of compliance.

CRM must be ground and granulated at ambient temperature. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. If cryogenically produced, CRM particles must be large enough to be ground or granulated and not pass through the grinder or granulator.

CRM must be dry, free-flowing particles that do not stick together. CRM must not cause foaming when combined with the asphalt binder and asphalt modifier. You may add calcium carbonate or talc up to 3 percent by weight of CRM.

39-1.02D(4) Asphalt Rubber Binder Design and Profile

Submit a proposal for asphalt rubber binder design and profile. In the design, include the asphalt, asphalt modifier, and CRM and their proportions. The profile is not a performance specification and only serves to indicate expected trends in asphalt rubber binder properties during binder production. The profile must include the same component sources for the asphalt rubber binder used.

Design the asphalt rubber binder from testing you perform for each quality characteristic and for the reaction temperatures expected during production. The 24-hour (1,440-minute) interaction period determines the design profile. At a minimum, mix asphalt rubber binder components, take samples, and perform and record the tests shown in the following table:

NOT FOR BIDDING PURPOSES

Asphalt Rubber Binder Reaction Design Profile

Test	Minutes of reaction [a]							Limits
	45	60	90	120	240	360	1440	
Cone penetration @ 77 °F, 0.10-mm (ASTM D 217)	X [b]				X		X	25–70
Resilience @ 77 °F, percent rebound (ASTM D 5329)	X				X		X	18 min.
Field softening point, °F (ASTM D 36)	X				X		X	125–165
Viscosity, centipoises (LP-11)	X	X	X	X	X	X	X	1,500–4,000

[a] Six hours (360 minutes) after CRM addition, reduce the oven temperature to 275 °F for 16 hours. After the 16-hour (1,320-minutes) cooldown after CRM addition, reheat the binder to the reaction temperature expected during production for sampling and testing at 24 hours (1,440 minutes).

[b] "X" denotes required testing

39-1.02D(5) Asphalt Rubber Binder

After interacting for at least 45 minutes, asphalt rubber binder must have the values for the quality characteristics shown in the following table:

Asphalt Rubber Binder

Quality characteristic	Test for quality control or acceptance	Test method	Value	
			Minimum	Maximum
Cone penetration @ 77 °F, 0.10 mm	Acceptance	ASTM D 217	25	70
Resilience @ 77 °F, percent rebound	Acceptance	ASTM D 5329	18	--
Field softening point, °F	Acceptance	ASTM D 36	125	165
Viscosity @ 375 °F, centipoises	Quality control	LP-11	1,500	4,000

39-1.02E Aggregate

Aggregate must be clean and free from deleterious substances.

The specified aggregate gradation must be determined before the addition of asphalt binder and includes supplemental fine aggregate. The Department tests for aggregate grading under California Test 202, modified by California Test 105 if there is a difference in specific gravity of 0.2 or more between the coarse and fine parts of different aggregate blends.

Choose sieve size TV within each TV limit presented in the aggregate gradation tables.

The proposed aggregate gradation must be within the TV limits for the specified sieve sizes shown in the following tables:

NOT FOR BIDDING PURPOSES

Aggregate Gradation
(Percentage Passing)
HMA Types A and B

3/4-inch HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
1"	100	--
3/4"	90–100	TV ± 5
1/2"	70–90	TV ± 6
No. 4	45–55	TV ± 7
No. 8	32–40	TV ± 5
No. 30	12–21	TV ± 4
No. 200	2.0–7.0	TV ± 2

1/2-inch HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
3/4"	100	—
1/2"	95–99	TV ± 6
3/8"	75–95	TV ± 6
No. 4	55–66	TV ± 7
No. 8	38–49	TV ± 5
No. 30	15–27	TV ± 4
No. 200	2.0–8.0	TV ± 2

3/8-inch HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
1/2"	100	--
3/8"	90–100	TV ± 6
No. 4	58–72	TV ± 7
No. 8	34–48	TV ± 6
No. 30	18–32	TV ± 5
No. 200	2.0–9.0	TV ± 2

No. 4 HMA Types A and B

Sieve sizes	TV limits	Allowable tolerance
3/8"	100	--
No. 4	95–100	TV ± 7
No. 8	72–77	TV ± 7
No. 30	37–43	TV ± 7
No. 200	2.0–12.0	TV ± 4

NOT FOR BIDDING PURPOSES

RHMA-G

3/4-inch RHMA-G

Sieve sizes	TV limits	Allowable tolerance
1"	100	—
3/4"	95–100	TV ± 5
1/2"	83–87	TV ± 6
3/8"	65–70	TV ± 6
No. 4	28–42	TV ± 7
No. 8	14–22	TV ± 5
No. 200	0–6.0	TV ± 2

1/2-inch RHMA-G

Sieve sizes	TV limits	Allowable tolerance
3/4"	100	--
1/2"	90–100	TV ± 6
3/8"	83–87	TV ± 6
No. 4	28–42	TV ± 7
No. 8	14–22	TV ± 5
No. 200	0–6.0	TV ± 2

NOT FOR BIDDING PURPOSES

OGFC

1-inch OGFC

Sieve sizes	TV limits	Allowable tolerance
1 1/2"	100	—
1"	99–100	TV ± 5
3/4"	85–96	TV ± 5
1/2"	55–71	TV ± 6
No. 4	10–25	TV ± 7
No. 8	6–16	TV ± 5
No. 200	1.0–6.0	TV ± 2

1/2-inch OGFC

Sieve sizes	TV limits	Allowable tolerance
3/4"	100	--
1/2"	95–100	TV ± 6
3/8"	78–89	TV ± 6
No. 4	28–37	TV ± 7
No. 8	7–18	TV ± 5
No. 30	0–10	TV ± 4
No. 200	0–3.0	TV ± 2

3/8-inch OGFC

Sieve sizes	TV limits	Allowable tolerance
1/2"	100	--
3/8"	90–100	TV ± 6
No. 4	28–36	TV ± 7
No. 8	7–18	TV ± 6
No. 30	0–10	TV ± 5
No. 200	0–3.0	TV ± 2

Before the addition of asphalt binder and lime treatment, aggregate must have the values for the quality characteristics shown in the following table:

Aggregate Quality

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC

NOT FOR BIDDING PURPOSES

Percent of crushed particles Coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face	California Test 205	 90 75 70	 25 -- 20	 -- 90 70	 90 75 90
Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.	California Test 211	 12 45	 -- 50	 12 40	 12 40
Sand equivalent (min.) [a]	California Test 217	47	42	47	--
Fine aggregate angularity (% min.) [b]	California Test 234	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	California Test 235	10	10	10	10

[a] Reported value must be the average of 3 tests from a single sample.

[b] The Engineer waives this specification if HMA contains less than 10 percent of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

NOT FOR BIDDING PURPOSES

39-1.02F Reclaimed Asphalt Pavement

You may produce HMA Type A or B, using RAP. HMA produced using RAP must comply with the specifications for HMA, except aggregate quality specifications do not apply to RAP. You may substitute RAP aggregate for a part of the virgin aggregate in HMA in a quantity not exceeding 15.0 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

Assign the substitution rate of RAP aggregate for virgin aggregate with the JMF submittal. The JMF must include the percent of RAP used. If you change your assigned RAP aggregate substitution rate by more than 5 percent (within the 15.0 percent limit), submit a new JMF.

Process RAP from asphalt concrete. You may process and stockpile RAP during the entire project. Prevent material contamination and segregation. Store RAP in stockpiles on smooth surfaces free of debris and organic material. Processed RAP stockpiles must be only homogeneous RAP.

39-1.03 HOT MIX ASPHALT MIX DESIGN REQUIREMENTS

39-1.03A General

The mix design process consists of performing California Test 367 and laboratory procedures on combinations of aggregate gradations and asphalt binder contents to determine the OBC and HMA mixture qualities. The results become the proposed JMF.

Use the *Contractor Hot Mix Asphalt Design Data* form to record aggregate quality and mix design data. Use the *Contractor Job Mix Formula Proposal* form to present the JMF.

Laboratories testing aggregate qualities and preparing the mix design and JMF must be qualified under the Department's Independent Assurance Program. Take samples under California Test 125.

The Engineer reviews the aggregate qualities, mix design, and JMF and verifies and authorizes the JMF.

You may change the JMF during production. Do not use the changed JMF until it is authorized. Except if adjusting the JMF as specified in section 39-1.03E, perform a new mix design and submit a new JMF submittal if you change any of the following:

1. Target asphalt binder percentage
2. Asphalt binder supplier
3. Asphalt rubber binder supplier
4. Component materials used in asphalt rubber binder or percentage of any component materials
5. Combined aggregate gradation
6. Aggregate sources
7. Substitution rate for RAP aggregate of more than 5 percent
8. Any material in the JMF

For OGFC, submit a complete JMF submittal, except for asphalt binder content. The Department determines the asphalt binder content under California Test 368 within 20 days of your complete JMF submittal and provides you a *Caltrans Hot Mix Asphalt Verification* form.

39-1.03B Hot Mix Asphalt Mix Design

Perform a mix design that produces HMA with the values for the quality characteristics shown in the following table:

HMA Mix Design Requirements

Quality characteristic	Test method	HMA type		
		A	B	RHMA-G
Air void content (%)	California Test 367	4.0	4.0	Section 39-1.03B
Voids in mineral aggregate (% min.)	California Test 367			
No. 4 grading		17.0	17.0	--
3/8" grading		15.0	15.0	--
1/2" grading		14.0	14.0	18.0–23.0[a]
3/4" grading		13.0	13.0	18.0–23.0[a]
Voids filled with asphalt (%)	California Test 367			Note c
No. 4 grading		76.0–80.0	76.0–80.0	
3/8" grading		73.0–76.0	73.0–76.0	
1/2" grading		65.0–75.0	65.0–75.0	
3/4" grading		65.0–75.0	65.0–75.0	
Dust proportion	California Test 367			Note c
No. 4 and 3/8" gradings		0.9–2.0	0.9–2.0	
1/2" and 3/4" gradings		0.6–1.3	0.6–1.3	
Stabilometer value (min.) [b]	California Test 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

[a] Voids in mineral aggregate for RHMA-G must be within this range.
[b] California Test 304, Part 2.13.
[c] Report this value in the JMF submittal.

NOT FOR BIDDING PURPOSES

Report the average of 3 tests. If the range of stability for the 3 briquettes is more than 8 points, prepare new briquettes and test again. The average air void content may vary from the specified air void content by ±0.5 percent.

39-1.03C Job Mix Formula Submittal

Each JMF submittal must consist of:

1. Proposed JMF on a *Contractor Job Mix Formula Proposal* form
2. Mix design records on a *Contractor Hot Mix Asphalt Design Data* form dated within 12 months of submittal

3. JMF verification on a *Caltrans Hot Mix Asphalt Verification* form, if applicable
4. JMF renewal on a *Caltrans Production Start-Up Evaluation* form, if applicable
5. MSDS for the following:
   5.1. Asphalt binder
   5.2. Base asphalt binder used in asphalt rubber binder
   5.3. CRM and asphalt modifier used in asphalt rubber binder
   5.4. Blended asphalt rubber binder mixture
   5.5. Supplemental fine aggregate except fines from dust collectors
   5.6. Antistrip additives

If the Engineer requests, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 lb each:

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must be at least 120 lb for each coarse aggregate, 80 lb for each fine aggregate, and 10 lb for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF TVs submitted on a *Contractor Job Mix Formula Proposal* form.
2. RAP from stockpiles or RAP system. Samples must be at least 60 lb.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical-shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical-shaped cans with open top and friction lids.

Notify the Engineer at least 2 business days before sampling materials. For aggregate and RAP, split the samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

For HMA Type A or B produced under the QC/QA construction process, submit with the JMF submittal:

1. California Test 204 plasticity index results
2. California Test 371 tensile strength ratio results for untreated HMA
3. California Test 371 tensile strength ratio results for treated HMA if untreated HMA tensile strength ratio is below 70

For RHMA-G produced under the QC/QA construction process, submit with the JMF submittal:

1. California Test 371 tensile strength ratio results for untreated RHMA-G
2. California Test 204 plasticity index results on the aggregate blend if untreated RHMA-G tensile strength ratio is below 70
3. California Test 371 tensile strength ratio results for treated RHMA-G if untreated RHMA-G tensile strength ratio is below 70

For any HMA produced under the QC/QA construction process, submit the California Test 371 test results to the Engineer and to:

Moisture_Tests@dot.ca.gov

39-1.03D Job Mix Formula Review

The Engineer reviews each mix design and proposed JMF within 5 business days from the complete JMF submittal. The review consists of reviewing the mix design procedures and comparing the proposed JMF with the specifications.

The Engineer may verify aggregate quality characteristics during this review period.

NOT FOR BIDDING PURPOSES

39-1.03E Job Mix Formula Verification

If you cannot submit a Department-verified JMF on a *Caltrans Hot Mix Asphalt Verification* form dated within 12 months before HMA production, the Engineer verifies the JMF.

Based on your testing and production experience, you may submit an adjusted JMF on a *Contractor Job Mix Formula Proposal* form before verification testing. JMF adjustments may include a change in the:

1. Asphalt binder content TV up to ±0.6 percent from the OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form, except for RHMA-G, do not adjust the TV for asphalt rubber binder below 7.0 percent
2. Aggregate gradation TVs within the TV limits specified in the aggregate gradation tables

For HMA Type A, Type B, and RHMA-G, the Engineer verifies the JMF from samples taken from HMA produced by the plant to be used. Notify the Engineer at least 2 business days before sampling materials.

In the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Sample RAP from the RAP system. Sample HMA under California Test 125, except if you request and if authorized, you may sample from any of the following locations:

1. Plant
2. Truck
3. Windrow
4. Paver hopper
5. Mat behind the paver

You may sample from a different project, including a non-Department project, if you make arrangements for the Engineer to be present during sampling.

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts and keep 1 part for your testing.

The Engineer verifies each proposed JMF within 20 days of receiving all verification samples and the JMF submittal has been accepted. If you request, the Engineer verifies RHMA-G quality requirements within 3 business days of sampling. Verification is testing for compliance with the specifications for:

1. Aggregate quality
2. Aggregate gradation TVs within the TV limits
3. Asphalt binder content TV within the TV limit
4. HMA quality specified in the table HMA Mix Design Requirements except:
   - 4.1. Air void content, design value ±2.0 percent
   - 4.2. Voids filled with asphalt, report only if an adjustment for asphalt binder content TV is less than ± 0.3 percent from OBC
   - 4.3. Dust proportion, report only if an adjustment for asphalt binder content TV is less than ±0.3 percent from OBC

NOT FOR BIDDING PURPOSES

The Engineer prepares 3 briquettes from a single split sample. To verify the JMF for stability and air void content, the Engineer tests the 3 briquettes and reports the average of 3 tests. The Engineer prepares new briquettes if the range of stability for the 3 briquettes is more than 8 points.

The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under California Test 308. If the same briquettes are used and the tests using bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

If the JMF is verified, the Engineer provides you a *Caltrans Hot Mix Asphalt Verification* form.

If tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF submittal or submit an adjusted JMF based on your testing. JMF adjustments may include a change in:

1. Asphalt binder content TV up to ±0.6 percent from the OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form except do not adjust the TV for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation TVs within the TV limits specified in the aggregate gradation tables

You may adjust the JMF only once due to a failed verification test. An adjusted JMF requires a new *Contractor Job Mix Formula Proposal* form and verification of a plant-produced sample.

The Engineer reverifies the JMF if HMA production has stopped for longer than 30 days and the verified JMF is older than 12 months.

For each HMA type and aggregate size specified, the Engineer verifies at the Department's expense up to 2 proposed JMF, including a JMF adjusted after verification failure. The Engineer deducts $3,000 from payments for each verification exceeding this limit. This deduction does not apply to verifications initiated by the Engineer or if a JMF expires while HMA production is stopped longer than 30 days.

For any HMA produced under the QC/QA construction process, the Department does not use California Test 371 test results for JMF verification.

NOT FOR BIDDING PURPOSES

39-1.03F Job Mix Formula Renewal

You may request a JMF renewal by submitting:

1. Proposed JMF on a *Contractor Job Mix Formula Proposal* form
2. Previously verified JMF documented on a *Caltrans Hot Mix Asphalt Verification* form dated within 12 months
3. Mix design documentation on a *Contractor Hot Mix Asphalt Design Data* form used for the previously verified JMF

If the Engineer requests, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 lb each:

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 lb for each coarse aggregate, 80 lb for each fine aggregate, and 10 lb for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF TVs submitted on a *Contractor Job Mix Formula Proposal* form.
2. RAP from stockpiles or RAP system. Samples must be at least 60 lb.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical-shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical-shaped cans with open top and friction lids.

Notify the Engineer at least 2 business days before sampling materials. For aggregate, RAP, and HMA, split samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

The Engineer reviews each complete JMF renewal submittal within 5 business days.

The Engineer may verify aggregate qualities during this review period.

The Engineer verifies the JMF under section 39-1.03E except:

1. Engineer retains samples until you provide test results for your part on a *Contractor Job Mix Formula Renewal* form.
2. Department tests samples of materials obtained from the HMA production unit after you submit test results that comply with the specifications for the quality characteristics in section 39-1.03E.
3. Engineer verifies each proposed JMF within 30 days of receiving verification samples.
4. You may not adjust the JMF due to a failed verification.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the Department's expense 1 proposed JMF.

If the Engineer verifies the JMF renewal, the Engineer provides you a *Caltrans Hot Mix Asphalt Verification* form.

NOT FOR BIDDING PURPOSES

39-1.03G Job Mix Formula Acceptance

You may start HMA production if:

1. Engineer's review of the JMF shows compliance with the specifications
2. Department has verified the JMF within 12 months before HMA production
3. Engineer authorizes the verified JMF

39-1.04 CONTRACTOR QUALITY CONTROL

39-1.04A General

Establish, maintain, and change a quality control system to ensure materials and work comply with the specifications. Submit quality control test results within 3 days of a request, except if the QC/QA construction process is specified.

You must identify the HMA sampling location in your QC plan. During production, take samples under California Test 125, except if you request and if authorized, sample HMA from any of the following locations:

1. Plant
2. Truck
3. Windrow
4. Paver hopper
5. Mat behind the paver

39-1.04B Prepaving Conference

Hold a prepaving conference with the Engineer at a mutually agreed time and place. Discuss methods of performing the production and paving work.

39-1.04C Asphalt Rubber Binder

Take asphalt rubber binder samples from the feed line connecting the asphalt rubber binder tank to the HMA plant. Sample and test asphalt rubber binder under Laboratory Procedure LP-11.

Test asphalt rubber binder for compliance with the viscosity specifications in section 39-1.02. During the asphalt rubber binder production and HMA production using asphalt rubber binder, measure the viscosity every hour with not less than 1 reading for each asphalt rubber binder batch. Log the

measurements with the corresponding time and asphalt rubber binder temperature. Submit the log daily.

Submit a certificate of compliance and test results for CRM and asphalt modifier with each truckload delivered to the HMA plant. A certificate of compliance for asphalt modifier must not represent more than 5,000 lb. Use an AASHTO-certified laboratory for testing.

Sample and test gradation and wire and fabric content of CRM once per 10,000 lb of scrap tire crumb rubber and once per 3,400 lb of high natural rubber. Sample and test scrap tire crumb rubber and high natural rubber separately.

Submit certified weight slips for the furnished CRM and asphalt modifier.

39-1.04D Aggregate

Determine the aggregate moisture content and RAP moisture content in continuous mixing plants at least twice a day during production and adjust the plant controller. Determine the RAP moisture content in batch mixing plants at least twice a day during production and adjust the plant controller.

39-1.04E Reclaimed Asphalt Pavement

Perform RAP quality control testing each day.

Sample RAP once daily and determine the RAP aggregate gradation under California Test 367, appendix B, and submit the results with the combined aggregate gradation.

39-1.04F Density Cores

To determine density for Standard and QC/QA construction process projects, take 4- or 6-inch diameter density cores at least once every 5 business days. Take 1 density core for every 250 tons of HMA from random locations the Engineer designates. Take density cores in the Engineer's presence and backfill and compact holes with authorized material. Before submitting a density core, mark it with the density core's location and place it in a protective container.

If a density core is damaged, replace it with a density core taken within 1 foot longitudinally from the original density core. Relocate any density core located within 1 foot of a rumble strip to 1 foot transversely away from the rumble strip.

39-1.04G Briquettes

Prepare 3 briquettes for each stability and air void content determination. Report the average of 3 tests. Prepare new briquettes and test again when the range of stability for the 3 briquettes is more than 8 points.

You may use the same briquettes used for stability testing to determine bulk specific gravity under California Test 308. If you use these briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity.

39-1.05 ACCEPTANCE CRITERIA

HMA acceptance is specified in the sections for each HMA construction process.

The Department samples materials for testing under California Test 125 and the applicable test method, except samples may be taken:

1. At the plant from a truck or an automatic sampling device
2. From the mat behind the paver

Sampling must be independent of Contractor quality control, statistically based, and random.

If you request, the Department splits samples and provides you with a part.

HMA acceptance is based on:

NOT FOR BIDDING PURPOSES

1. Authorized JMF
2. Accepted QC plan for Standard and QC/QA construction process projects
3. Compliance with the HMA acceptance tables
4. Lot acceptance for QC/QA construction process projects
5. Visual inspection

The Department prepares 3 briquettes for each stability and air void content determination. The average of 3 tests is reported. If the range of stability for the 3 briquettes is more than 8 points, new briquettes are prepared and tested.

The Department may use the briquettes used for stability testing to determine bulk specific gravity under California Test 308. If the Engineer uses the same briquettes and the tests using that bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

39-1.06 DISPUTE RESOLUTION

Work with the Engineer to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer within 5 days of receiving a test result if you dispute the test result.

If you or the Engineer dispute each other's test results, submit quality control test results and copies of paperwork including worksheets used to determine the disputed test results. An independent third party performs referee testing. Before the independent third party participates in a dispute resolution, the party must be accredited under the Department's Independent Assurance Program. The independent third party must be independent of the project. By mutual agreement, the independent third party is chosen from:

1. Department laboratory
2. Department laboratory in a district or region not in the district or region the project is located
3. Transportation Laboratory
4. Laboratory not currently employed by you or your HMA producer

If split quality control or acceptance samples are not available, the independent third party uses any available material representing the disputed HMA for evaluation.

39-1.07 PRODUCTION START-UP EVALUATION

The Engineer evaluates HMA production and placement at production start-up.

Within the first 750 tons produced on the 1st day of HMA production, in the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Take RAP samples from the RAP system. Sample HMA under California Test 125, except if you request and if authorized, you may sample HMA from any of the following locations:

1. Plant
2. Truck
3. Windrow
4. Paver hopper
5. Mat behind the paver

NOT FOR BIDDING PURPOSES

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts and keep 1 part.

For Standard and QC/QA construction process projects, you and the Department must test the split samples and report test results within 3 business days of sampling. If you proceed before receipt of the test results, the Engineer may consider the HMA placed to be represented by these test results.

For Standard and QC/QA construction process projects, take 4- or 6-inch diameter density cores within the first 750 tons on the 1st day of HMA production. For each density core, the Department reports the bulk specific gravity determined under California Test 308, Method A, in addition to the percent of maximum theoretical density. You may test for in-place density at the density core locations and include them in your production tests for percent of maximum theoretical density.

39-1.08 PRODUCTION

39-1.08A General

Produce HMA in a batch mixing plant or a continuous mixing plant. Proportion aggregate by hot or cold feed control.

HMA plants must be Department qualified. Before production, the HMA plant must have current qualification under the Department's Materials Plant Quality Program.

During production, you may adjust:

1. Hot or cold feed proportion controls for virgin aggregate and RAP
2. Set point for asphalt binder content

39-1.08B Mixing

Mix HMA ingredients into a homogeneous mixture of coated aggregates.

Asphalt binder must be from 275 to 375 degrees F when mixed with aggregate.

Asphalt rubber binder must be from 350 to 425 degrees F when mixed with aggregate.

When mixed with asphalt binder, aggregate must not be more than 325 degrees F, except aggregate for OGFC must be not more than 275 degrees F. These aggregate temperature specifications do not apply if you use RAP.

HMA with or without RAP must not be more than 325 degrees F.

39-1.08C Asphalt Rubber Binder

Deliver scrap tire crumb rubber and high natural rubber in separate bags.

Either proportion and mix asphalt binder, asphalt modifier, and CRM simultaneously or premix the asphalt binder and asphalt modifier before adding CRM. If you premix the asphalt binder and asphalt modifier, the asphalt binder must be from 375 to 425 degrees F when you add the asphalt modifier. Mix for at least 20 minutes. When you add CRM, the asphalt binder and asphalt modifier must be from 375 to 425 degrees F.

Do not use asphalt rubber binder during the first 45 minutes of the reaction period. During this period, the asphalt rubber binder mixture must be from 375 to the lower of 425 degrees F or 25 degrees F below the asphalt binder's flash point described in the MSDS.

If any asphalt rubber binder is not used within 4 hours after the reaction period, discontinue heating. If the asphalt rubber binder drops below 375 degrees F, reheat before use. If you add more scrap tire crumb rubber to the reheated asphalt rubber binder, the binder must react for 45 minutes. The added scrap tire crumb rubber must not exceed 10 percent of the total asphalt rubber binder weight. Reheated and reacted asphalt rubber binder must comply with the viscosity specifications for asphalt rubber binder in section 39-1.02D. Do not reheat asphalt rubber binder more than twice.

NOT FOR BIDDING PURPOSES

39-1.09 SUBGRADE, TACK COAT, AND GEOSYNTHETIC PAVEMENT INTERLAYER

39-1.09A General

Prepare subgrade or apply tack coat to surfaces receiving HMA. If specified, place geosynthetic pavement interlayer over a coat of asphalt binder.

39-1.09B Subgrade

Subgrade to receive HMA must comply with the compaction and elevation tolerance specifications in the sections for the material involved. Subgrade must be free of loose and extraneous material. If HMA is paved on existing base or pavement, remove loose paving particles, dirt, and other extraneous material by any means including flushing and sweeping.

39-1.09C Tack Coat

Apply tack coat:

1. To existing pavement, including planed surfaces
2. Between HMA layers
3. To vertical surfaces of:
   3.1. Curbs
   3.2. Gutters
   3.3. Construction joints

Before placing HMA, apply tack coat in 1 application. The application rate must be the minimum residual rate specified for the underlying surface conditions shown in the following tables:

NOT FOR BIDDING PURPOSES

Tack Coat Application Rates for HMA Type A, Type B, and RHMA-G

HMA overlay over:	Minimum residual rates (gal/sq yd)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h asphaltic emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 asphaltic emulsion	Asphalt binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h asphaltic emulsion
New HMA (between layers)	0.02	0.03	0.02
PCC and existing HMA (AC) surfaces	0.03	0.04	0.03
Planed PCC and HMA (AC) surfaces	0.05	0.06	0.04

Tack Coat Application Rates for OGFC

OGFC over:	Minimum residual rates (gal/sq yd)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h asphaltic emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 asphaltic emulsion	Asphalt binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h asphaltic emulsion
New HMA	0.03	0.04	0.03
PCC and existing HMA (AC) surfaces	0.05	0.06	0.04
Planed PCC and HMA (AC) surfaces	0.06	0.07	0.05

If you dilute asphaltic emulsion, mix until homogeneous before application.

For vertical surfaces, apply a residual tack coat rate that will thoroughly coat the vertical face without running off.

If you request and if authorized, you may:

1. Change tack coat rates
2. Omit tack coat between layers of new HMA during the same work shift if:
   2.1. No dust, dirt, or extraneous material is present
   2.2. Surface is at least 140 degrees F

Immediately in advance of placing HMA, apply additional tack coat to damaged areas or where loose or extraneous material is removed.

Close areas receiving tack coat to traffic. Do not track tack coat onto pavement surfaces beyond the job site.

Asphalt binder tack coat must be from 285 to 350 degrees F when applied.

39-1.09D Geosynthetic Pavement Interlayer

Place geosynthetic pavement interlayer under the manufacturer's instruction.

Before placing the geosynthetic pavement interlayer and asphalt binder:

1. Repair cracks 1/4 inch and wider, spalls, and holes in the pavement. These repairs are change order work.
2. Clean the pavement of loose and extraneous material.

Immediately before placing the interlayer, apply 0.25 ± 0.03 gal of asphalt binder per square yard of interlayer or until the fabric is saturated. Apply asphalt binder the width of the geosynthetic pavement interlayer plus 3 inches on each side. At interlayer overlaps, apply asphalt binder on the lower interlayer the same overlap distance as the upper interlayer.

Asphalt binder must be from 285 to 350 degrees F and below the minimum melting point of the geosynthetic pavement interlayer when applied.

Align and place the interlayer with no folds that result in a triple thickness, except that triple thickness layers less than 1 inch in width may remain if less than 1/2 inch in height. Folds that result in a triple layer greater than a 1 inch width must be slit and overlapped in a double thickness at least 2 inches in width.

The minimum HMA thickness over the interlayer must be 0.12 foot thick, including conform tapers. Do not place the interlayer on a wet or frozen surface.

Overlap the interlayer borders from 2 to 4 inches. In the direction of paving, overlap the following roll with the preceding roll at any break.

You may use rolling equipment to correct distortions or wrinkles in the interlayer.

If asphalt binder tracked onto the interlayer or brought to the surface by construction equipment causes interlayer displacement, cover it with a small quantity of HMA.

Before placing HMA on the interlayer, do not expose the interlayer to:

1. Traffic, except for crossings under traffic control, and only after you place a small HMA quantity
2. Sharp turns from construction equipment
3. Damaging elements

NOT FOR BIDDING PURPOSES

Pave HMA on the interlayer during the same work shift.

39-1.10 SPREADING AND COMPACTING EQUIPMENT

Paving equipment for spreading must be:

1. Self-propelled
2. Mechanical
3. Equipped with a screed or strike-off assembly that can distribute HMA the full width of a traffic lane
4. Equipped with a full-width compacting device
5. Equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope

Install and maintain grade and slope references.

The screed must produce a uniform HMA surface texture without tearing, shoving, or gouging.

The paver must not leave marks such as ridges and indentations, unless you can eliminate them by rolling.

Rollers must be equipped with a system that prevents HMA from sticking to the wheels. You may use a parting agent that does not damage the HMA or impede the bonding of layers.

In areas inaccessible to spreading and compacting equipment:

1. Spread the HMA by any means to obtain the specified lines, grades, and cross sections.
2. Use a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction.

39-1.11 TRANSPORTING, SPREADING, AND COMPACTING

Do not pave HMA on wet pavement or a frozen surface.

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pickup, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may pave HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way, including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement, including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:

1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

Longitudinal joints in the top layer must match specified lane edges. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

NOT FOR BIDDING PURPOSES

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes changes, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer, including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

If leveling with HMA is specified, fill and level irregularities and ruts with HMA before spreading HMA over the base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not paid for as HMA (leveling).

If placing HMA against the edge of existing pavement, saw cut or grind the pavement straight and vertical along the joint and remove extraneous material.

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 degrees F for HMA with unmodified binder
2. Below 140 degrees F for HMA with modified binder
3. Below 200 degrees F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic-tired roller to compact RHMA-G.

For Standard and QC/QA construction processes, if 3/4-inch aggregate grading is specified, you may use 1/2-inch aggregate grading if the total layer thickness is from 0.125 to 0.20 foot thick.

Spread and compact HMA under sections 39-3.03 and 39-3.04 if any of the following applies:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:
   3.1. Asphalt concrete surfacing replacement areas
   3.2. Leveling courses
   3.3. Areas for which the Engineer determines conventional compaction and compaction measurement methods are impeded

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

If you request and if authorized, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under section 17-3.

Spread sand at a rate from 1 to 2 lb/sq yd on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with section 90-1.02C(4)(c). Keep traffic off the pavement until spreading sand is complete.

NOT FOR BIDDING PURPOSES

39-1.12 SMOOTHNESS

39-1.12A General

Determine HMA smoothness with a profilograph and a straightedge.

Smoothness specifications do not apply to OGFC placed on existing pavement not constructed under the same project.

If concrete pavement is placed on HMA:

1. Cold plane the HMA finished surface to within specified tolerances if it is higher than the grade ordered.
2. Remove and replace HMA if the finished surface is lower than 0.05 foot below the grade ordered.

39-1.12B Straightedge

The top layer of HMA pavement must not vary from the lower edge of a 12-foot straightedge:

1. More than 0.01 foot when the straightedge is laid parallel with the centerline
2. More than 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. More than 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

39-1.12C Profilograph

For the top layer of HMA Type A, Type B, and RHMA-G pavement, determine the PI_0 and must-grinds under California Test 526. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane.

A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.

For OGFC, only determine must-grinds if placed over HMA constructed under the same project. The top layer of the underlying HMA must comply with the smoothness specifications before placing OGFC.

Profile the pavement in the Engineer's presence.

On tangents and horizontal curves with a centerline radius of curvature of 2,000 feet, the PI_0 must be at most 3 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature from 1,000 to 2,000 feet, including pavement within the superelevation transitions, the PI_0 must be at most 6 inches per 0.1-mile section.

Before the Engineer accepts HMA pavement for smoothness, submit final profilograms.

Submit 1 copy of profile information in Microsoft Excel and 1 copy of longitudinal pavement profiles in ".erd" format or other ProVAL compatible format to the Engineer and to:

Smoothness@dot.ca.gov

The following HMA pavement areas do not require a PI_0. You must measure these areas with a 12-foot straightedge and determine must-grinds with a profilograph:

1. New HMA with a total thickness less than 0.25 foot
2. HMA sections of city or county streets and roads, turn lanes, and collector lanes less than 1,500 feet in length

The following HMA pavement areas do not require a PI_0 and you must measure them with a 12-foot straightedge:

NOT FOR BIDDING PURPOSES

1. Horizontal curves with a centerline radius of curvature less than 1,000 feet, including pavement within the superelevation transitions of those curves
2. Within 12 feet of a transverse joint separating the pavement from:
   2.1. Existing pavement not constructed under the same project
   2.2. A bridge deck or approach slab
3. Exit ramp termini, truck weigh stations, and weigh-in-motion areas
4. If steep grades and superelevation rates greater than 6 percent are present:
   4.1. Ramps
   4.2. Connectors
5. Turn lanes
6. Areas within 15 feet of manholes or drainage transitions
7. Acceleration and deceleration lanes for at-grade intersections
8. Shoulders and miscellaneous areas
9. HMA pavement within 3 feet from and parallel to the construction joints formed between curbs, gutters, or existing pavement

39-1.12D Smoothness Correction

If the top layer of HMA Type A, Type B, or RHMA-G pavement does not comply with the smoothness specifications, grind the pavement to within specified tolerances, remove and replace it, or place an overlay of HMA. Do not start corrective work until your choice of methods is authorized.

Remove and replace areas of OGFC not in compliance with the must-grind and straightedge specifications, except you may grind OGFC for correcting smoothness:

1. At transverse joints separating the OGFC from pavement not constructed under the same project
2. Within 12 feet of a transverse joint separating the OGFC from a bridge deck or approach slab

Corrected HMA pavement areas must be uniform rectangles with edges:

1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

Measure the corrected HMA pavement surface with a profilograph and a 12-foot straightedge and correct the pavement to within specified tolerances. If a must-grind area or straightedged pavement cannot be corrected to within specified tolerances, remove and replace the pavement.

On areas ground but not overlaid with OGFC, apply fog seal coat under section 37-2.

39-1.13 HOT MIX ASPHALT ON BRIDGE DECKS

Produce and place HMA on bridge decks under the Method construction process.

Aggregate must comply with the 1/2-inch HMA Types A and B gradation.

If authorized, aggregate may comply with the no. 4 HMA Types A and B gradation for a section or taper at a bridge end that is less than 1 inch in total depth.

If a concrete expansion dam is to be placed at a bridge deck expansion joint, tape oil-resistant construction paper to the deck over the area to be covered by the dam before placing the tack coat and HMA across the joint.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to traffic.

The tack coat application rate must be the minimum residual rate specified in section 39-1.09C. For HMA placed on a deck seal, use the minimum residual rate specified for a PCC underlying surface.

HMA placed on a deck seal must be placed in at least 2 approximately equal layers. The 1st layer must be at least 1 inch thick after compaction. Protect the deck seal throughout all operations.

NOT FOR BIDDING PURPOSES

For placement of the 1st HMA layer on a deck seal:

1. Comply with the HMA application temperature recommended by the deck seal manufacturer.
2. Deliver and place HMA using equipment with pneumatic tires or rubber-faced wheels. Do not operate other vehicles or equipment on the bare deck seal.
3. Deposit HMA on the deck seal in such a way that the deck seal is not damaged. Do not windrow the HMA material on the bridge deck seal.
4. Place HMA in a downhill direction on bridge decks with grades over 2 percent.
5. Spreading equipment need not be self-propelled.

39-1.14 MISCELLANEOUS AREAS AND DIKES

The following specifications in section 39 do not apply to miscellaneous areas and dikes:

1. HMA construction process
2. HMA mix design requirements
3. Contractor quality control
4. Production start-up evaluation

Miscellaneous areas are outside the traveled way and include:

1. Median areas not including inside shoulders
2. Island areas
3. Sidewalks
4. Gutters
5. Gutter flares
6. Ditches
7. Overside drains
8. Aprons at the ends of drainage structures

Spread miscellaneous areas in 1 layer and compact to the specified lines and grades.

For miscellaneous areas and dikes:

1. Do not submit a JMF.
2. Choose the 3/8-inch or 1/2-inch HMA Type A and Type B aggregate gradations.
3. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate and 6.0 percent for 1/2-inch aggregate. If you request and if authorized, you may reduce the minimum asphalt binder content.
4. Choose asphalt binder Grade PG 70-10 or the same grade specified for HMA.

NOT FOR BIDDING PURPOSES

39-1.15 MINOR HOT MIX ASPHALT

39-1.15A GENERAL

39-1.15A(1) Summary

The following specifications in section 39 do not apply to minor HMA:

1. HMA construction process
2. HMA mix design requirements
3. Contractor quality control
4. Production start-up evaluation

39-1.15A(2) Definitions

Reserved

39-1.15A(3) Submittals

Reserved

39-1.15A(4) Quality Control and Assurance

Reserved

39-1.15B MATERIALS

The minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate gradation and 6.0 percent for 1/2-inch aggregate gradation.

Choose asphalt binder Grade PG 64-10, PG 64-16, or PG 70-10.

If you request and if authorized, you may reduce the minimum asphalt binder content.

Choose the 3/8-inch or 1/2-inch HMA Type A or Type B aggregate gradation.

39-1.15C CONSTRUCTION

Produce HMA at a central mixing plant.

Choose any method and equipment to spread and compact.

The surface must be:

1. Textured uniformly
2. Compacted firmly
3. Without depressions, humps, and irregularities

Smoothness specifications do not apply.

39-1.16 RUMBLE STRIPS

Reserved

39-1.17 DATA CORES

Reserved

39-1.18 HOT MIX ASPHALT AGGREGATE LIME TREATMENT—DRY LIME METHOD

Reserved

39-1.19 HOT MIX ASPHALT AGGREGATE LIME TREATMENT—SLURRY METHOD

Reserved

39-1.20 LIQUID ANTISTRIP TREATMENT

Reserved

39-1.21 REPLACE ASPHALT CONCRETE SURFACING

Reserved

39-1.22 LIQUID ASPHALT PRIME COAT

Reserved

39-1.23 HOT MIX ASPHALT TYPE C

Reserved

39-1.24 BONDED WEARING COURSE—GAP GRADED

Reserved

39-1.25 RUBBERIZED BONDED WEARING COURSE—GAP GRADED

Reserved

NOT FOR BIDDING PURPOSES

39-1.26 RUBBERIZED BONDED WEARING COURSE—OPEN GRADED

Reserved

39-1.27 BONDED WEARING COURSE—OPEN GRADED

Reserved

39-1.28 ROADSIDE PAVING

Reserved

39-1.29 SOIL TREATMENT

Reserved

39-1.30–39-1.40 RESERVED

39-2 STANDARD CONSTRUCTION PROCESS

39-2.01 GENERAL

Section 39-2 includes specifications for HMA produced and constructed under the Standard construction process.

39-2.02 CONTRACTOR QUALITY CONTROL

39-2.02A Quality Control Plan

Establish, implement, and maintain a QC plan for HMA. The QC plan must describe the organization and procedures you will use to:

1. Control the quality characteristics
2. Determine when corrective actions are needed (action limits)
3. Implement corrective actions

When you submit the proposed JMF, submit the proposed QC plan. You and the Engineer must discuss the QC plan during the prepaving conference.

The QC plan must address the elements affecting HMA quality including:

1. Aggregate
2. Asphalt binder
3. Additives
4. Production
5. Paving

The Engineer reviews each QC plan within 5 business days from the submittal. Do not produce HMA until the Engineer authorizes the QC plan.

NOT FOR BIDDING PURPOSES

39-2.02B Quality Control Testing

Perform sampling and testing at the specified frequency for the quality characteristics shown in the following table:

Minimum Quality Control—Standard Construction Process

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA type			
			A	B	RHMA-G	OGFC

Aggregate gradation[a]	California Test 202	1 per 750 tons and any remaining part	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]
Sand equivalent (min)[c]	California Test 217		47	42	47	--
Asphalt binder content (%)	California Test 379 or 382		JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max)	California Test 226 or 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	1.0
Percent of maximum theoretical density (%)[d, e]	QC plan	2 per business day (min.)	91–97	91–97	91–97	--
Stabilometer value (min)[c, f] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	One per 4,000 tons or 2 per 5 business days, whichever is greater	30 37	30 35	-- 23	-- --
Air void content (%)[c, g]	California Test 367		4 ± 2	4 ± 2	TV ± 2	--
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants[h]	California Test 226 or 370	2 per day during production	--	--	--	--

NOT FOR BIDDING PURPOSES

Percent of crushed particles coarse aggregate (%, min) One fractured face Two fractured faces	California Test 205	As designated in the QC plan. At least once per project	90 75	25 --	-- 90	90 75
Fine aggregate (%, min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face			70	20	70	90
Los Angeles Rattler (%, max) Loss at 100 rev. Loss at 500 rev.	California Test 211		12 45	-- 50	12 40	12 40
Flat and elongated particles (%, max by weight @ 5:1)	California Test 235		Report only	Report only	Report only	Report only
Fine aggregate angularity (%, min)	California Test 234		45	45	45	--
Voids filled with asphalt (%)[i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		76.0–80.0 73.0–76.0 65.0–75.0 65.0–75.0	76.0–80.0 73.0–76.0 65.0–75.0 65.0–75.0	Report only	--
Voids in mineral aggregate (% min)[i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0[j] 18.0–23.0[j]	--
Dust proportion[i] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367		0.9–2.0 0.6–1.3	0.9–2.0 0.6–1.3	Report only	--

NOT FOR BIDDING PURPOSES

Smoothness	Section 39-1.12	--	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0
Asphalt rubber binder viscosity @ 350 °F, centipoises	Section 39-1.02D	Section 39-1.04C	--	--	1,500–4,000	1,500–4,000
Asphalt modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D

[a] Determine combined aggregate gradation containing RAP under California Test 367.
[b] The tolerances must comply with the allowable tolerances in section 39-1.02E.
[c] Report the average of 3 tests from a single split sample.
[d] Required for HMA Type A, Type B, and RHMA-G if the specified paved thickness is at least 0.15 foot.
[e] Determine maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.
[f] California Test 304, Part 2.13.
[g] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[h] For adjusting the plant controller at the HMA plant.
[i] Report only if the adjustment for the asphalt binder content TV is less than or equal to ±0.3 percent from OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form.
[j] Voids in mineral aggregate for RHMA-G must be within this range.

NOT FOR BIDDING PURPOSES

For any single quality characteristic except smoothness, if 2 consecutive quality control test results do not comply with the action limits or specifications:

1. Stop production.
2. Notify the Engineer.
3. Take corrective action.
4. Demonstrate compliance with the specifications before resuming production and placement.

39-2.03 ACCEPTANCE CRITERIA

39-2.03A Testing

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

HMA Acceptance—Standard Construction Process

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC

Aggregate gradation [a]				California Test 202	JMF ± tolerance [c]	JMF ± tolerance [c]	JMF ± tolerance [c]	JMF ± tolerance [c]
Sieve	3/4"	1/2"	3/8"					
1/2"	X [b]							
3/8"		X						
No. 4			X					
No. 8	X	X	X					
No. 200	X	X	X					
Sand equivalent (min) [d]				California Test 217	47	42	47	--
Asphalt binder content (%)				California Test 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max)				California Test 226 or 370	1.0	1.0	1.0	1.0
Percent of maximum theoretical density (%) [e, f]				California Test 375	91–97	91–97	91–97	--
Stabilometer value (min)[d,g]				California Test 366				
No. 4 and 3/8" gradings					30	30	--	--
1/2" and 3/4" gradings					37	37	23	--
Air void content (%) [d, h]				California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Percent of crushed particles				California Test 205				
Coarse aggregate (%, min)					90	25	--	90
One fractured face					75	--	90	75
Two fractured faces								
Fine aggregate (%, min)								
(Passing no. 4 sieve and retained on no. 8 sieve.)					70	20	70	90
One fractured face								
Los Angeles Rattler (%, max)				California Test 211				
Loss at 100 rev					12	--	12	12
Loss at 500 rev					45	50	40	40
Fine aggregate angularity (%, min)				California Test 234	45	45	45	--
Flat and elongated particles (%, max by weight @ 5:1)				California Test 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [i]				California Test 367				
No. 4 grading					76.0–80.0	76.0–80.0	Report only	--
3/8" grading					73.0–76.0	73.0–76.0		
1/2" grading					65.0–75.0	65.0–75.0		
3/4" grading					65.0–75.0	65.0–75.0		

NOT FOR BIDDING PURPOSES

Voids in mineral aggregate (% min) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	 -- -- 18.0–23.0 [j] 18.0–23.0 [j]	--
Dust proportion [i] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367	 0.9–2.0 0.6–1.3	 0.9–2.0 0.6–1.3	 Report only	--
Smoothness	Section 39-1.12	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge and must grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92-1.01D(2) and section 39-1.02D	Section 92-1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various		--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under California Test 367.

[b] "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

[c] The tolerances must comply with the allowable tolerances in section 39-1.02E.

[d] The Engineer reports the average of 3 tests from a single split sample.

[e] The Engineer determines percent of maximum theoretical density if the specified paved thickness is at least 0.15 foot under California Test 375, except the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. California Test 309 to determine maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

[f] The Engineer determines maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.

[g] California Test 304, Part 2.13.

[h] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

[i] Report only if the adjustment for the asphalt binder content TV is less than or equal to ±0.3 percent from the OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form.

[j] Voids in mineral aggregate for RHMA-G must be within this range.

No single test result may represent more than 750 tons or 1 day's production, whichever is less.

NOT FOR BIDDING PURPOSES

For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. Take samples and split each sample into 4 parts in the Engineer's presence. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Department tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement.

The Department tests the density core you take from each 250 tons of HMA production. The Department determines the percent of maximum theoretical density for each density core by determining the density core's density and dividing by the maximum theoretical density.

If the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot, the Department determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness.

For percent of maximum theoretical density, the Engineer determines a deduction for each test result outside the specifications using the reduced payment factors shown in the following table:

Reduced Payment Factors for Percent of Maximum Theoretical Density

HMA Type A and B and RHMA-G percent of maximum theoretical density	Reduced payment factor	HMA Type A and B and RHMA-G percent of maximum theoretical density	Reduced payment factor
91.0	0.0000	97.0	0.0000
90.9	0.0125	97.1	0.0125
90.8	0.0250	97.2	0.0250
90.7	0.0375	97.3	0.0375
90.6	0.0500	97.4	0.0500
90.5	0.0625	97.5	0.0625
90.4	0.0750	97.6	0.0750
90.3	0.0875	97.7	0.0875
90.2	0.1000	97.8	0.1000
90.1	0.1125	97.9	0.1125
90.0	0.1250	98.0	0.1250
89.9	0.1375	98.1	0.1375
89.8	0.1500	98.2	0.1500
89.7	0.1625	98.3	0.1625
89.6	0.1750	98.4	0.1750
89.5	0.1875	98.5	0.1875
89.4	0.2000	98.6	0.2000
89.3	0.2125	98.7	0.2125
89.2	0.2250	98.8	0.2250
89.1	0.2375	98.9	0.2375
89.0	0.2500	99.0	0.2500
< 89.0	Remove and replace	> 99.0	Remove and replace

NOT FOR BIDDING PURPOSES

39-2.04 TRANSPORTING, SPREADING, AND COMPACTING

Determine the number of rollers needed to obtain the specified density and surface finish.

39-3 METHOD CONSTRUCTION PROCESS

39-3.01 GENERAL

Section 39-3 includes specifications for HMA produced and constructed under the Method construction process.

39-3.02 ACCEPTANCE CRITERIA

39-3.02A Testing

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

HMA Acceptance—Method Construction Process

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC

NOT FOR BIDDING PURPOSES

Aggregate gradation [a]	California Test 202	JMF ± tolerance [b]	JMF ± tolerance [b]	JMF ± tolerance [b]	JMF ± tolerance [b]
Sand equivalent (min) [c]	California Test 217	47	42	47	--
Asphalt binder content (%)	California Test 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max)	California Test 226 or 370	1.0	1.0	1.0	1.0
Stabilometer value (min) [c, d]	California Test 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Percent of crushed particles	California Test 205				
Coarse aggregate (% min)					
One fractured face		90	25	--	90
Two fractured faces		75		90	75
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max)	California Test 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Air void content (%) [c, e]	California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Fine aggregate angularity (% min)	California Test 234	45	45	45	--
Flat and elongated particles (% max by weight @ 5:1)	California Test 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [f]	California Test 367				
No. 4 grading		76.0–80.0	76.0–80.0	Report only	--
3/8" grading		73.0–76.0	73.0–76.0		
1/2" grading		65.0–75.0	65.0–75.0		
3/4" grading		65.0–75.0	65.0–75.0		
Voids in mineral aggregate (% min) [f]	California Test 367				
No. 4 grading		17.0	17.0	--	--
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0–23.0 [g]	
3/4" grading		13.0	13.0	18.0–23.0 [g]	

NOT FOR BIDDING PURPOSES

Dust proportion [f] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367	 0.9–2.0 0.6–1.3	 0.9–2.0 0.6–1.3	Report only	--
Smoothness	Section 39-1.12	12-foot straight-edge and must-grind	12-foot straight-edge and must-grind	12-foot straight-edge and must-grind	12-foot straight-edge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92-1.01D(2) and section 39-1.02D	Section 92-1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various	--	--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under California Test 367.
[b] The tolerances must comply with the allowable tolerances in section 39-1.02E.
[c] The Engineer reports the average of 3 tests from a single split sample.
[d] California Test 304, Part 2.13.
[e] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[f] Report only if the adjustment for the asphalt binder content TV is less than or equal to ±0.3 percent from the OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form.
[g] Voids in mineral aggregate for RHMA-G must be within this range.

NOT FOR BIDDING PURPOSES

No single test result may represent more than 750 tons or 1 day's production, whichever is less.

For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. Take samples and split each sample into 4 parts in the Engineer's presence. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Department tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement.

39-3.03 SPREADING AND COMPACTING EQUIPMENT

Each paver spreading HMA Type A and Type B must be followed by 3 rollers as follows:

1. One vibratory roller specifically designed to compact HMA. The roller must be capable of at least 2,500 vibrations per minute and must be equipped with amplitude and frequency controls. The roller's gross static weight must be at least 7.5 tons.
2. One oscillating type pneumatic-tired roller at least 4 feet wide. Pneumatic tires must be of equal size, diameter, type, and ply. The tires must be inflated to 60 psi minimum and maintained so that the air pressure does not vary more than 5 psi.
3. One steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.

Each roller must have a separate operator. Rollers must be self-propelled and reversible.

Compact RHMA-G as specified for HMA Type A and Type B except do not use pneumatic-tired rollers.

Compact OGFC with steel-tired, 2-axle tandem rollers. If placing 300 tons or more of OGFC per hour, use at least 3 rollers for each paver. If placing less than 300 tons of OGFC per hour, use at least 2 rollers for each paver. Each roller must weigh from 126 to 172 lb per linear inch of drum width. Turn the vibrator off.

39-3.04 TRANSPORTING, SPREADING, AND COMPACTING

Pave HMA in maximum 0.25-foot thick compacted layers.

If the surface to be paved is both in sunlight and shade, pavement surface temperatures must be taken in the shade.

Spread HMA Type A and Type B at the atmospheric and surface temperatures shown in the following table:

Minimum Atmospheric and Surface Temperatures

Compacted layer thickness, feet	Atmospheric, °F		Surface, °F	
	Unmodified asphalt binder	Modified asphalt binder[a]	Unmodified asphalt binder	Modified asphalt binder[a]
< 0.15	55	50	60	55
0.15–0.25	45	45	50	50

[a] Except asphalt rubber binder.

NOT FOR BIDDING PURPOSES

If the asphalt binder for HMA Type A and Type B is unmodified asphalt binder, complete:

1. First coverage of breakdown compaction before the surface temperature drops below 250 degrees F
2. Breakdown and intermediate compaction before the surface temperature drops below 200 degrees F
3. Finish compaction before the surface temperature drops below 150 degrees F

If the asphalt binder for HMA Type A and Type B is modified asphalt binder, complete:

1. First coverage of breakdown compaction before the surface temperature drops below 240 degrees F
2. Breakdown and intermediate compaction before the surface temperature drops below 180 degrees F
3. Finish compaction before the surface temperature drops below 140 degrees F

For RHMA-G:

1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
2. Complete the 1st coverage of breakdown compaction before the surface temperature drops below 280 degrees F.
3. Complete breakdown and intermediate compaction before the surface temperature drops below 250 degrees F.
4. Complete finish compaction before the surface temperature drops below 200 degrees F.
5. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For HMA-O with unmodified asphalt binder:

1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 240 degrees F.
3. Complete all compaction before the surface temperature drops below 200 degrees F.
4. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For HMA-O with modified asphalt binder, except asphalt rubber binder:

1. Only spread and compact if the atmospheric temperature is at least 50 degrees F and the surface temperature is at least 50 degrees F.
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 240 degrees F.
3. Complete all compaction before the surface temperature drops below 180 degrees F.
4. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-O and RHMA-O-HB:

1. Only spread and compact if the atmospheric temperature is at least 55 degrees F and surface temperature is at least 60 degrees F.
2 Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 degrees F.
3. Complete compaction before the surface temperature drops below 250 degrees F.
4. Cover loads in trucks with tarpaulins, if the atmospheric temperature is below 70 degrees F. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-G and OGFC, tarpaulins are not required if the time from discharging to the truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes.

HMA compaction coverage is the number of passes needed to cover the paving width. A pass is 1 roller's movement parallel to the paving in either direction. Overlapping passes are part of the coverage being made and are not a subsequent coverage. Do not start a coverage until completing the prior coverage.

Start rolling at the lower edge and progress toward the highest part.

Perform breakdown compaction of each layer of HMA Type A, Type B, and RHMA-G with 3 coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not exceed the vibrations per minute divided by 1,000. If the thickness of the HMA layer is less than 0.08 foot, turn the vibrator off. The Engineer may order fewer coverages if the thickness of the HMA layer is less than 0.15 foot.

Perform intermediate compaction of each layer of HMA Type A and Type B with 3 coverages using a pneumatic-tired roller at a speed not exceeding 5 mph.

Perform finish compaction of HMA Type A, Type B, and RHMA-G with 1 coverage using a steel-tired roller.

Compact OGFC with 2 coverages using steel-tired rollers.

NOT FOR BIDDING PURPOSES

39-4 QUALITY CONTROL/QUALITY ASSURANCE CONSTRUCTION PROCESS

39-4.01 GENERAL

Section 39-4 includes specifications for HMA produced and constructed under the Quality Control / Quality Assurance construction process.

The QC/QA construction process consists of:

1. Establishing, maintaining, and changing if needed a quality control system providing assurance the HMA complies with the specifications
2. Sampling and testing at specified intervals, or sublots, to demonstrate compliance and to control the process
3. Department sampling and testing at specified intervals to verify the testing process and HMA quality
4. Engineer using test results, statistical evaluation of verified quality control tests, and inspection to accept HMA for payment

A lot is a quantity of HMA. The Engineer designates a new lot when:

1. 20 sublots are complete
2. JMF changes
3. Production stops for more than 30 days

Each lot consists of no more than 20 sublots. A sublot is 750 tons, except a quantity of HMA paved at day's end greater than 250 tons is a sublot. If a quantity of HMA paved at day's end is less than 250 tons, you may either make this quantity a sublot or include it in the previous sublot's test results for statistical evaluation.

NOT FOR BIDDING PURPOSES

39-4.02 CONTRACTOR QUALITY CONTROL

39-4.02A General

Use a composite quality factor, QF_C, and individual quality factors, QF_{QCi}, to control your process and evaluate the quality control program. For quality characteristics without quality factors, use your QC plan's action limits to control your process.

Control HMA quality including:

1. Materials
2. Proportioning
3. Spreading and compacting
4. Finished roadway surface

Develop, implement, and maintain a quality control program that includes:

1. Inspection
2. Sampling
3. Testing

39-4.02B Quality Control Plan

With the JMF submittal, submit a QC plan. The QC plan must comply with the Department's *Quality Control Manual for Hot Mix Asphalt Production and Placement*. Discuss the QC plan with the Engineer during the prepaving conference.

The Engineer reviews each QC plan within 5 business days from the submittal. Do not produce HMA until the Engineer authorizes the QC plan.

The QC plan must include the name and qualifications of a QC manager. The QC manager administers the QC plan and during paving must be at the job site within 3 hours of receiving notice. The QC manager must not be any of the following on the project:

1. Foreman
2. Production or paving crewmember
3. Inspector
4. Tester

The QC plan must include action limits and details of corrective action you will take if a test result for any quality characteristic falls outside an action limit.

As work progresses, you must submit a QC plan supplement to change quality control procedures, personnel, tester qualification status, or laboratory accreditation status.

39-4.02C Quality Control Inspection, Sampling, and Testing

Sample, test, inspect, and manage HMA quality control.

Provide a roadway inspector while HMA paving activities are in progress. Provide a plant inspector during HMA production.

Inspectors must comply with the Department's *Quality Control Manual for Hot Mix Asphalt Production and Placement*.

Provide a testing laboratory and personnel for quality control testing. Provide the Engineer unrestricted access to the quality control activities. Before providing services for the project, the Engineer reviews, accredits, and qualifies the testing laboratory and personnel under the Department's Independent Assurance Program.

For HMA at production start-up and every 5,000 tons, sample and test under California Test 371. Submit the test results to the Engineer and to:

Moisture_Tests@dot.ca.gov

For HMA at production start-up and once during production, submit samples split from your HMA production sample for California Test 371 to the Engineer and the Transportation Laboratory, Attention: Moisture Test.

The Department does not use results from California Test 371 to determine specification compliance.

Comply with the values for the HMA quality characteristics and minimum random sampling and testing for quality control shown in the following table:

NOT FOR BIDDING PURPOSES

Minimum Quality Control—QC/QA Construction Process

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA Type			Location of sampling	Maximum reporting time allowance
			A	B	RHMA-G		

Aggregate gradation[a]	California Test 202	1 per 750 tons	JMF ± tolerance [b]	JMF ± tolerance [b]	JMF ± tolerance [b]	California Test 125	24 hours
Asphalt binder content (%)	California Test 379 or 382		JMF ±0.45	JMF ±0.45	JMF ±0.50	Loose mix behind paver See California Test 125	
Percent of maximum theoretical density (%)[c,d]	QC plan		92–96	92–96	91–96	QC plan	
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants[e]	California Test 226 or 370	2 per day during production	--	--	--	Stock-piles or cold feed belts	--
Sand equivalent (min) [f]	California Test 217	1 per 750 tons	47	42	47	California Test 125	24 hours
HMA moisture content (%,max)	California Test 226 or 370	2 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	Loose Mix Behind Paver See California Test 125	24 hours
Stabilometer value (min)[f,g] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	1 per 4,000 tons or 2 per 5 business days, whichever is greater	30 37	30 35	-- 23		48 hours
Air void content (%)[f,h]	California Test 367		4 ± 2	4 ± 2	TV ± 2		

NOT FOR BIDDING PURPOSES

Percent of crushed particles coarse aggregate (% min.): One fractured face Two fractured faces Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.): One fractured face	California Test 205	As design-ated in QC plan. At least once per project.	90 75 70	25 -- 20	-- 90 [illegible]	California Test 125	48 hours
Los Angeles Rattler (% max): Loss at 100 rev. Loss at 500 rev.	California Test 211		[illegible] 45	-- 50	12 40	California Test 125	
Fine aggregate angularity (% min)	California Test 234		45	45	45	California Test 125	
Flat and elongated particle (% max by weight @ 5:1)	California Test 235		Report only	Report only	Report only	California Test 125	
Voids filled with asphalt (%) [i]: No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		76.0–80.0 73.0–76.0 65.0–75.0 65.0–75.0	76.0–80.0 73.0–76.0 65.0–75.0 65.0–75.0	Report only	California Test 367	

NOT FOR BIDDING PURPOSES

Voids in mineral aggregate (% min.) [i]: No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	 -- -- 18.0–23.0 [j] 18.0–23.0 [j]	California Test 367	
Dust proportion [i]: No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367		 0.9–2.0 0.6–1.3	 0.9–2.0 0.6–1.3	Report only	California Test 367	
Smoothness	Section 39-1.12	--	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	--	
Asphalt rubber binder viscosity @ 350 °F, centipoises	Section 39-1.02D	--		--	1,500–4,000	Section 39-1.02D	24 hours
CRM	Section 39-1.02D		--	--	Section 39-1.02D	Section 39-1.02D	48 hours

[a] Determine combined aggregate gradation containing RAP under California Test 367.
[b] The tolerances must comply with the allowable tolerances in section 39-1.02E.
[c] Required for HMA Type A, Type B, and RHMA-G if the specified paved thickness is at least 0.15 foot.
[d] Determine maximum theoretical density (California Test 309) at the frequency specified for test maximum density under California Test 375, Part 5 D.
[e] For adjusting the plant controller at the HMA plant.
[f] Report the average of 3 tests from a single split sample.
[g] California Test 304, Part 2.13.
[h] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[i] Report only if the adjustment for the asphalt binder content TV is less than or equal to ±0.3 percent from the OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form.
[j] Voids in mineral aggregate for RHMA-G must be within this range.

NOT FOR BIDDING PURPOSES

Within the specified reporting time, submit test results including:

1. Sampling location, quantity, and time
2. Testing results
3. Supporting data and calculations

If test results for any quality characteristic are beyond the action limits in the QC plan, take corrective actions. Document the corrective actions taken in the inspection records under section 39-4.02E.

Stop production, notify the Engineer, take corrective action, and demonstrate compliance with the specifications before resuming production and placement if:

1. A lot's composite quality factor, QF_C, or an individual quality factor, QF_{QCi} for i = 3, 4, or 5, is below 0.90 determined under section 39-4.02F using quality control data
2. An individual quality factor, QF_{QCi} for i = 1 or 2, is below 0.75 using quality control data
3. Quality characteristics for which a quality factor, QF_{QCi}, is not determined has 2 consecutive quality control tests not in compliance with the specifications

39-4.02D Charts and Records

Record sampling and testing results for quality control on forms provided in the *Quality Control Manual for Hot Mix Asphalt Production and Placement*, or on forms you submit with the QC plan. The QC plan must also include posting locations and submittal times for forms.

Submit quality control test results using the Department's statistical evaluation program, HMAPay. For HMAPay, go to the Department's Construction Web site.

39-4.02E Records of Inspection and Testing

During HMA production, submit a daily:

1. *HMA Construction Daily Record of Inspection*. Also make this record available at the HMA plant and job site each day.
2. *HMA Inspection and Testing Summary*. Include in the summary:
   2.1. QC worksheet with updated test results from the HMAPay program
   2.2. Test forms with the testers' signatures and QC manager's initials
   2.3. Inspection forms with the inspectors' signatures and QC manager's initials
   2.4. List and explanation of deviations from the specifications or regular practices
   2.5. Signed statement by the QC manager that says:

        "It is hereby certified that the information contained in this record is accurate, and that information, tests, or calculations documented herein comply with the specifications of the Contract and the standards set forth in the testing procedures. Exceptions to this certification are documented as part of this record."

Retain for inspection the records generated as part of quality control, including inspection, sampling, and testing for at least 3 years after final acceptance.

NOT FOR BIDDING PURPOSES

39-4.02F Statistical Evaluation

39-4.02F(1) General

Determine a lot's composite quality factor, QF_C, and the individual quality factors, QF_{QCi}. Perform statistical evaluation calculations to determine these quality factors based on quality control test results for:

1. Aggregate gradation
2. Asphalt binder content
3. Percent of maximum theoretical density

The Engineer grants a waiver and you must use 1.0 as the individual quality factor for percent of maximum theoretical density, QF_{QC5}, for HMA paved in:

1. Areas where the total paved thickness is less than 0.15 foot

2. Areas where the total paved thickness is less than 0.20 foot and 3/4-inch grading is specified and used
3. Dig outs
4. Leveling courses
5. Areas where compaction or compaction measurement by conventional methods is impeded

39-4.02F(2) Statistical Evaluation Calculations

Use the Variability-Unknown / Standard Deviation Method to determine the percentage of a lot not in compliance with the specifications.

Determine the percentage of work not in compliance with the specification limits for each quality characteristic as follows:

1. Calculate the arithmetic mean ($\bar{X}$) of the test values

$$\bar{X} = \frac{\Sigma x}{n}$$

where:

x = individual test values
n = number of test values

2. Calculate the standard deviation

$$s = \sqrt{\frac{n(\Sigma x^2)-(\Sigma x)^2}{n(n-1)}}$$

where:

$\sum(x^2)$ = sum of the squares of individual test values
$(\sum x)^2$ = sum of the individual test values squared
n = number of test values

3. Calculate the upper quality index (Qu)

$$Q_u = \frac{USL - \bar{X}}{s}$$

where:

USL = TV plus the production tolerance or upper specification limit
s = standard deviation
$\bar{X}$ = arithmetic mean

4. Calculate the lower quality index (QL);

$$Q_L = \frac{\bar{X} - LSL}{s}$$

where:

LSL = TV minus production tolerance or lower specification limit
s = standard deviation
$\bar{X}$ = arithmetic mean

5. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L, determine P_U ;

NOT FOR BIDDING PURPOSES

where:

P_U = estimated percentage of work outside the USL
P_U = 0, if USL is not specified

6. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L, determine P_L;

where:

P_L = estimated percentage of work outside the LSL
P_L = 0, if LSL is not specified

7. Calculate the total estimated percentage of work outside the USL and LSL, percent defective

Percent defective = PU + PL

The P_U and P_L are determined from the following:

NOT FOR BIDDING PURPOSES

P_U or P_L	**Upper Quality Index Q_U or Lower Quality Index Q_L**												
	Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
0	1.72	1.88	1.99	2.07	2.13	2.20	2.28	2.34	2.39	2.44	2.48	2.51	2.56
1	1.64	1.75	1.82	1.88	1.91	1.96	2.01	2.04	2.07	2.09	2.12	2.14	2.16
2	1.58	1.66	1.72	1.75	1.78	1.81	1.84	1.87	1.89	1.91	1.93	1.94	1.95
3	1.52	1.59	1.63	1.66	1.68	1.71	1.73	1.75	1.76	1.78	1.79	1.80	1.81
4	1.47	1.52	1.56	1.58	1.60	1.62	1.64	1.65	1.66	1.67	1.68	1.69	1.70
5	1.42	1.47	1.49	1.51	1.52	1.54	1.55	1.56	1.57	1.58	1.59	1.59	1.60
6	1.38	1.41	1.43	1.45	1.46	1.47	1.48	1.49	1.50	1.50	1.51	1.51	1.52
7	1.33	1.36	1.38	1.39	1.40	1.41	1.41	1.42	1.43	1.43	1.44	1.44	1.44
8	1.29	1.31	1.33	1.33	1.34	1.35	1.35	1.36	1.36	1.37	1.37	1.37	1.38
9	1.25	1.27	1.28	1.28	1.29	1.29	1.30	1.30	1.30	1.31	1.31	1.31	1.31
10	1.21	1.23	1.23	1.24	1.24	1.24	1.25	1.25	1.25	1.25	1.25	1.26	1.26
11	1.18	1.18	1.19	1.19	1.19	1.19	1.20	1.20	1.20	1.20	1.20	1.20	1.20
12	1.14	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
13	1.10	1.10	1.10	1.10	1.10	1.10	1.11	1.11	1.11	1.11	1.11	1.11	1.11
14	1.07	1.07	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
15	1.03	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
16	1.00	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
17	0.97	0.96	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
18	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90
19	0.90	0.89	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
20	0.87	0.86	0.85	0.85	0.84	0.84	0.84	0.83	0.83	0.83	0.83	0.83	0.83
21	0.84	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80	0.80	0.80	0.80	0.79
22	0.81	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.76	0.76	0.76	0.76	0.76
23	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73	0.73	0.73	0.73	0.73
24	0.74	0.73	0.72	0.72	0.71	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70
25	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.67	0.67	0.67	0.67	0.66
26	0.68	0.67	0.67	0.66	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.63
27	0.65	0.64	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.60
28	0.62	0.61	0.60	0.59	0.59	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.57
29	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.55	0.55	0.54
30	0.56	0.55	0.54	0.54	0.53	0.53	0.52	0.52	0.52	0.52	0.52	0.52	0.52
31	0.53	0.52	0.51	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49	0.49
32	0.50	0.49	0.48	0.48	0.48	0.47	0.47	0.47	0.46	0.46	0.46	0.46	0.46
33	0.47	0.46	0.45	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43
34	0.45	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.40
35	0.42	0.40	0.40	0.39	0.39	0.39	0.38	0.38	0.38	0.38	0.38	0.38	0.38
36	0.39	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
37	0.36	0.35	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32
38	0.33	0.32	0.32	0.31	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30
39	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
40	0.28	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
41	0.25	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
42	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
43	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
44	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
45	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
46	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
47	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
48	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

NOT FOR BIDDING PURPOSES

49	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTES:

1. If the value of Q_U or Q_L does not correspond to a value in the table, use the next lower value.
2. If Q_U or Q_L are negative values, P_U or P_L is equal to 100 minus the table value for P_U or P_L.

39-4.02F(3) Quality Factor Determination

Determine individual quality factors, QF_{QCi}, using percent defective = $P_U + P_L$ and the following:

NOT FOR BIDDING PURPOSES

Quality Factors

Quality factor	Maximum allowable percent defective ($P_U + P_L$)												
	Sample size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
1.05				0	0	0	0	0	0	0	0	0	0
1.04			0	1	3	5	4	4	4	3	3	3	3
1.03		0	2	4	6	8	7	7	6	5	5	4	4
1.02		1	3	6	9	11	10	9	8	7	7	6	6
1.01	0	2	5	8	11	13	12	11	10	9	8	8	7
1.00	22	20	18	17	16	15	14	13	12	11	10	9	8
0.99	24	22	20	19	18	17	16	15	14	13	11	10	9
0.98	26	24	22	21	20	19	18	16	15	14	13	12	10
0.97	28	26	24	23	22	21	19	18	17	16	14	13	12
0.96	30	28	26	25	24	22	21	19	18	17	16	14	13
0.95	32	29	28	26	25	24	22	21	20	18	17	16	14
0.94	33	31	29	28	27	25	24	22	21	20	18	17	15
0.93	35	33	31	29	28	27	25	24	22	21	20	18	16
0.92	37	34	32	31	30	28	27	25	24	22	21	19	18
0.91	38	36	34	32	31	30	28	26	25	24	22	21	19
0.90	39	37	35	34	33	31	29	28	26	25	23	22	20
0.89	41	38	37	35	34	32	31	29	28	26	25	23	21
0.88	42	40	38	36	35	34	32	30	29	27	26	24	22
0.87	43	41	39	38	37	35	33	32	30	29	27	25	23
0.86	45	42	41	39	38	36	34	33	31	30	28	26	24
0.85	46	44	42	40	39	38	36	34	33	31	29	28	25
0.84	47	45	43	42	40	39	37	35	34	32	30	29	27
0.83	49	46	44	43	42	40	38	36	35	33	31	30	28
0.82	50	47	46	44	43	41	39	38	36	34	33	31	29
0.81	51	49	47	45	44	42	41	39	37	36	34	32	30
0.80	52	50	48	46	45	44	42	40	38	37	35	33	31
0.79	54	51	49	48	46	45	43	41	39	38	36	34	32
0.78	55	52	50	49	48	46	44	42	41	39	37	35	33
0.77	56	54	52	50	49	47	45	43	42	40	38	36	34
0.76	57	55	53	51	50	48	46	44	43	41	39	37	35
0.75	58	56	54	52	51	49	47	46	44	42	40	38	36
	60	57	55	53	52	51	48	47	45	43	41	40	37
	61	58	56	55	53	52	50	48	46	44	43	41	38
Reject	62	59	57	56	54	53	51	49	47	45	44	42	39
	63	61	58	57	55	54	52	50	48	47	45	43	40
	64	62	60	58	57	55	53	51	49	48	46	44	41
Reject values greater than those shown above													

NOT FOR BIDDING PURPOSES

NOTE: To obtain a quality factor if the estimated percent outside specification limits from table titled, "Upper Quality Index Q_U or Lower Quality Index Q_L," does not correspond to a value in the table, use the next larger value.

Compute the composite of single quality factors, QF_C, for a lot using:

$$QF_C = \sum_{i=1}^{5} w_i \, QF_{QC_i}$$

where:

QF_C = the composite quality factor for the lot rounded to 2 decimal places

QF_{QCi} = the quality factor for the individual quality characteristic
w = the weighting factor listed in the table titled "HMA Acceptance – QC/QA Construction Process"
i = the quality characteristic index number in the table titled "HMA Acceptance – QC/QA Construction Process"

39-4.03 QUALITY ASSURANCE

39-4.03A General

The Department assures quality by:

1. Reviewing mix designs and proposed JMF
2. Inspecting procedures
3. Conducting oversight of quality control inspection and records
4. Verification sampling and testing during production and paving

39-4.03B Verification Sampling and Testing

39-4.03B(1) General

The Department samples:

1. Aggregate to verify gradation
2. HMA to verify asphalt binder content

39-4.03B(2) Verification

For aggregate gradation and asphalt binder content, the ratio of verification testing frequency to the minimum quality control testing frequency is 1:5. The Department performs at least 3 verification tests per lot.

Using the t-test, the Engineer compares quality control tests results for aggregate gradation and asphalt binder content with corresponding verification test results. The Engineer uses the average and standard deviation of up to 20 sequential sublots for the comparison. The Engineer uses production start-up evaluation tests to represent the 1st sublot. If there are less than 20 sequential sublots, the Engineer uses the maximum number of sequential sublots available. The 21st sublot becomes the 1st sublot (n = 1) in the next lot.

The t-value for a group of test data is computed as follows:

$$t = \frac{\left|\overline{X}_c - \overline{X}_v\right|}{S_p\sqrt{\frac{1}{n_c} + \frac{1}{n_v}}} \qquad \text{and} \qquad S_p^2 = \frac{S_c^2(n_c - 1) + S_v^2(n_v - 1)}{n_c + n_v - 2}$$

where:

n_c = Number of quality control tests (2 min, 20 max).
n_v = Number of verification tests (min of 1 required).
$\overline{X}_c$ = Mean of quality control tests.
$\overline{X}_v$ = Mean of verification tests.
S_p = Pooled standard deviation (when $n_v = 1$, $S_p = S_c$).
S_c = Standard deviation of quality control tests.
S_v = Standard deviation of verification tests (when $n_v > 1$).

NOT FOR BIDDING PURPOSES

The comparison of quality control test results and the verification test results is at a level of significance of α = 0.025. The Engineer computes t and compares it to the following critical t-values, t_{crit}:

Critical T-Value

Degrees of freedom (n_c+n_v-2)	t_{crit} (for α = 0.025)	Degrees of freedom (n_c+n_v-2)	t_{crit} (for α = 0.025)
1	24.452	18	2.445
2	6.205	19	2.433
3	4.177	20	2.423
4	3.495	21	2.414
5	3.163	22	2.405
6	2.969	23	2.398
7	2.841	24	2.391
8	2.752	25	2.385
9	2.685	26	2.379
10	2.634	27	2.373
11	2.593	28	2.368
12	2.560	29	2.364
13	2.533	30	2.360
14	2.510	40	2.329
15	2.490	60	2.299
16	2.473	120	2.270
17	2.458	∞	2.241

If the t-value computed is less than or equal to t_{crit}, quality control test results are verified.

If the t-value computed is greater than t_{crit} and both $\overline{X}_v$ and $\overline{X}_c$ comply with acceptance specifications, the quality control tests are verified. You may continue to produce and place HMA with the following allowable differences:

1. $\left|\overline{X}_v - \overline{X}_c\right|$ ≤ 1.0 percent for any grading
2. $\left|\overline{X}_v - \overline{X}_c\right|$ ≤ 0.1 percent for asphalt binder content

If the t-value computed is greater than t_{crit} and the $\left|\overline{X}_v - \overline{X}_c\right|$ for grading and asphalt binder content are greater than the allowable differences, quality control test results are not verified and:

1. Engineer notifies you.
2. You and the Engineer must investigate why the difference exists.
3. If the reason for the difference cannot be found and corrected, the Department's test results are used for acceptance and pay.

NOT FOR BIDDING PURPOSES

39-4.04 ACCEPTANCE CRITERIA

39-4.04A Testing

The Engineer samples for acceptance testing and tests for the following quality characteristics:

HMA Acceptance—QC/QA Construction Process

Index (i)	Quality characteristic				Weighting factor (w)	Test method	HMA type		
							A	B	RHMA-G
		Aggregate gradation [a]				California Test 202	JMF ± Tolerance [c]		
	Sieve	3/4"	1/2"	3/8"					

NOT FOR BIDDING PURPOSES

1	1/2"	X [b]	--	--	0.05			
1	3/8"	--	X	--	0.05			
1	No. 4	--	--	X	0.05			
2	No. 8	X	X	X	0.10			
3	No. 200	X	X	X	0.15			
4	Asphalt binder content (%)				0.30	California Test 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.5
5	Percent of maximum theoretical density (%) [d, e]				0.40	California Test 375	92–96	92–96	91–96
	Sand equivalent (min) [f]					California Test 217	47	42	47
	Stabilometer value (min) [f,g] No. 4 and 3/8" gradings 1/2" and 3/4" gradings					California Test 366	 30 37	 30 35	 -- 23
	Air void content (%) [f, h]					California Test 367	4 ± 2	4 ± 2	TV ± 2
	Percent of crushed particles coarse aggregate (% min) One fractured face Two fractured faces Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face					California Test 205	 90 75 70	 25 -- 20	 -- 90 70
	HMA moisture content (%, max)					California Test 226 or 370	1.0	1.0	1.0
	Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.					California Test 211	 12 45	 -- 50	 12 40
	Fine aggregate angularity (% min)					California Test 234	45	45	45
	Flat and elongated particle (% max by weight @ 5:1)					California Test 235	Report only	Report only	Report only
	Voids in mineral aggregate (% min) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading					California Test 367	 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	(Note j) -- -- 18.0–23.0 18.0–23.0

NOT FOR BIDDING PURPOSES

	Voids filled with asphalt (%) [i] No. 4 grading 3/8" grading 1/2" grading 3/4" grading		California Test 367	76.0–80.0 73.0–76.0 65.0–75.0 65.0–75.0	76.0–80.0 73.0–76.0 65.0–75.0 65.0–75.0	Report only
	Dust proportion [i] No. 4 and 3/8" gradings 1/2" and 3/4" gradings		California Test 367	0.9–2.0 0.6–1.3	0.9–2.0 0.6–1.3	Report only
	Smoothness		Section 39-1.12	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various		--	Section 92-1.01D(2) and section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	CRM		Various	--	--	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under California Test 367.

[b] "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

[c] The tolerances must comply with the allowable tolerances in section 39-1.02E.

[d] The Engineer determines percent of maximum theoretical density if the specified total paved thickness is at least 0.15 foot under California Test 375 except the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. California Test 309 to determine maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

[e] The Engineer determines maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.

[f] The Engineer reports the average of 3 tests from a single split sample.

[g] California Test 304, Part 2.13.

[h] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

[i] Report only if the adjustment for the asphalt binder content TV is less than or equal to ±0.3 percent from the OBC value submitted on a *Contractor Hot Mix Asphalt Design Data* form.

[j] Voids in mineral aggregate for RHMA-G must be within this range.

The Department determines the percent of maximum theoretical density from the average density of 3 density cores you take from every 750 tons of production or part thereof divided by the maximum theoretical density.

NOT FOR BIDDING PURPOSES

If the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot, the Department determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness.

The Engineer calculates QF_{QCi} for i = 1, 2, 3, and 4 using quality control data and QF_{QCi} for i = 5 using quality assurance data,

The Engineer stops production and terminates a lot if:

1. A lot's composite quality factor, QF_C, or an individual quality factor, QF_{QCi} for i = 3, 4, or 5, is below 0.90 determined under section 39-4.02F
2. An individual quality factor, QF_{QCi} for i = 1 or 2, is below 0.75
3. Quality characteristics for which a quality factor, QF_{QCi}, is not determined has 2 consecutive acceptance or quality control test results not in compliance with the specifications

For any single quality characteristic for which a quality factor, QF_{QCi}, is not determined, except smoothness, if 2 consecutive acceptance test results do not comply with specifications:

1. Stop production.
2. Take corrective action.
3. Take samples and split each sample into 4 parts in the Engineer's presence. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Department tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement.

NOT FOR BIDDING PURPOSES

39-4.04B Statistical Evaluation, Determination of Quality Factors, and Acceptance

39-4.04B(1) Statistical Evaluation and Determination of Quality Factors

To determine the individual quality factor, QF_{QCi} for any quality factor i = 1 through 5 or a lot's composite quality factor, QF_C, for acceptance and payment adjustment, the Engineer uses the evaluation specifications under section 39-4.02F and the following:

1. Verified quality control test results for aggregate gradation
2. Verified quality control test results for asphalt binder content
3. Department's test results for percent of maximum theoretical density

39-4.04B(2) Lot Acceptance Based on Quality Factors

The Engineer accepts a lot based on the quality factors determined for aggregate gradation and asphalt binder content, QF_{QCi} for i = 1 through 4, using the total number of verified quality control test result values and the total percent defective ($P_U + P_L$).

The Engineer accepts a lot based on the quality factor determined for maximum theoretical density, QF_{QC5}, using the total number of test result values from cores and the total percent defective ($P_U + P_L$).

The Engineer calculates the quality factor for the lot, QF_C, which is a composite of weighted individual quality factors, QF_{QCi}, determined for each quality characteristic in the HMA Acceptance – QC/QA table in section 39-4.04A.

The Engineer accepts a lot based on quality factors if:

1. Current composite quality factor, QF_C, is 0.90 or greater
2. Each individual quality factor, QF_{QCi} for i = 3, 4, and 5, is 0.90 or greater
3. Each individual quality factor, QF_{QCi} for i = 1 and 2, is 0.75 or greater

No single quality characteristic test may represent more than 750 tons or 1 day's production, whichever is less.

39-4.04B(3) Payment Adjustment

If a lot is accepted, the Engineer adjusts payment with the following formula:

$$PA = \sum_{i=1}^{n} HMACP * w_i * \left[QF_{QCi} * (HMATT - WHMATT_i) + WHMATT_i\right] - \left(HMACP * HMATT\right)$$

where:

PA =	payment adjustment rounded to 2 decimal places
HMACP =	HMA Contract price
HMATT =	HMA total tons represented in the lot
$WHMATT_i$ =	total tons of waived quality characteristic HMA
QF_{QCi} =	running quality factor for the individual quality characteristic QF_{QCi} for i = 1 through 4 must be from verified Contractor's QC results. QF_{QC5} must be determined from the Engineer's results on density cores taken for percent of maximum theoretical density determination.
w =	weighting factor listed in the HMA acceptance table
i =	quality characteristic index number in the HMA acceptance table

If the payment adjustment is a negative value, the Engineer deducts this amount from payment. If the payment adjustment is a positive value, the Engineer adds this amount to payment.

The 21st sublot becomes the 1st sublot (n = 1) in the next lot. If the 21st sequential sublot becomes the 1st sublot, the previous 20 sequential sublots become a lot for which the Engineer determines a quality factor. The Engineer uses this quality factor to pay for the HMA in the lot. If the next lot consists of less than 8 sublots, these sublots must be added to the previous lot for quality factor determination using 21 to 27 sublots.

39-4.04C Dispute Resolution

For a lot, if you or the Engineer dispute any quality factor, QF_{QCi}, or verification test result, every sublot in that lot must be retested.

Referee tests must be performed under the specifications for acceptance testing.

Any quality factor, QF_{QCi}, must be determined using the referee tests.

For any quality factor, QF_{QCi}, for i = 1 through 5, dispute resolution:

1. If the difference between the quality factors for QF_{QCi} using the referee test result and the disputed test result is less than or equal to 0.01, the original test result is correct
2. If the difference between the quality factor for QF_{QCi} using the referee test result and the disputed test result is more than 0.01, the quality factor determined from the referee tests supersedes the previously determined quality factor

39-5 RESERVED

39-6 PAYMENT

Section 39-6 includes specifications for HMA payment. The weight of each HMA mixture designated in the Bid Item List must be the combined mixture weight.

If the QC/QA construction process is specified, the Engineer adjusts payment under section 39-4.

If recorded batch weights are printed automatically, the bid item for HMA is measured by using the printed batch weights, provided:

NOT FOR BIDDING PURPOSES

1. Total aggregate and supplemental fine aggregate weight per batch is printed. If supplemental fine aggregate is weighed cumulatively with the aggregate, the total aggregate batch weight must include the supplemental fine aggregate weight.
2. Total asphalt binder weight per batch is printed.
3. Each truckload's zero tolerance weight is printed before weighing the 1st batch and after weighing the last batch.
4. Time, date, mix number, load number, and truck identification is correlated with a load slip.
5. Copy of the recorded batch weights is certified by a licensed weighmaster and submitted to the Engineer.

If tack coat, asphalt binder, and asphaltic emulsion are paid with separate contract items, their contract items are measured under section 92 or section 94.

The Department does not adjust the unit price for an increase or decrease in the tack coat quantity. Section 9-1.06 does not apply to tack coat.

Place hot mix asphalt dike of the type specified is measured along the completed length.

Place hot mix asphalt (miscellaneous areas) is measured as the in-place compacted area.

HMA dike is paid for as place hot mix asphalt dike of the type specified in the Bid Item List and by weight for hot mix asphalt.

HMA specified to be placed in miscellaneous areas is paid for as place hot mix asphalt (miscellaneous area) and by weight for hot mix asphalt.

If the QC/QA construction process is specified, HMA placed in dikes and miscellaneous areas is paid for as hot mix asphalt as specified in section 39-4 except section 39-4.04B does not apply.

If minor hot mix asphalt is paid by area, it is measured from the dimensions shown.

Payment for tack coat for minor HMA is included in payment for minor hot mix asphalt or the bid item that requires minor HMA.

Geosynthetic pavement interlayer is measured for the actual pavement area covered.

If the dispute resolution independent third party determines the Department's test results are correct, the Engineer deducts the independent third party's testing costs from payments. If the independent third party determines your test results are correct, the Department pays the independent third party's testing costs.

NOT FOR BIDDING PURPOSES