STATE OF CALIFORNIA

DEPARTMENT OF ENGINEERING

CALIFORNIA HIGHWAY COMMISSION

CONTRACT

AND

SPECIFICATIONS

FOR

CONSTRUCTING A PORTION OF A HIGHWAY IN

THE COUNTY OF SAN MATEO

BETWEEN SOUTH SAN FRANCISCO

AND BURLINGAME

Division IV ; Route 2 ; Section A

AS A

STATE HIGHWAY

1912.

CONTRACT NO. 1.

SACRAMENTO

FRIEND WM. RICHARDSON - - - - SUPERINTENDENT OF STATE PRINTING

1912

Made by H.H.
Checked by a.o.m.

a.o.m.
E.O.D.

STATE OF CALIFORNIA

DEPARTMENT OF ENGINEERING

CALIFORNIA HIGHWAY COMMISSION

CONTRACT

AND

SPECIFICATIONS

FOR

CONSTRUCTING A PORTION OF A HIGHWAY IN

THE COUNTY OF SAN MATEO

BETWEEN SOUTH SAN FRANCISCO

AND BURLINGAME

Division IV; Route 2; Section A

AS A

STATE HIGHWAY

1912.

CONTRACT NO. /.

SACRAMENTO

FRIEND WM. RICHARDSON - - - - SUPERINTENDENT OF STATE PRINTING

1912

STATE OF CALIFORNIA

DEPARTMENT OF ENGINEERING

CALIFORNIA HIGHWAY COMMISSION

NOTICE TO CONTRACTORS

Sealed proposals, addressed to the California Highway Commission, Department of Engineering, and endorsed "Proposals for constructing a State Highway in San Mateo County," will be received by the Commission at its office in the Forum Building, Sacramento, until 2 o'clock P. M. of the 24th day of June, 1912, and at that time and place will be publicly opened and read.

All proposals must be made upon blank form to be obtained of the Highway Engineer at his office, Forum Building, Sacramento; must give the prices proposed, both in writing and figures; and must be signed by the bidder, with his address.

Each bid is to be accompanied with a bond of said bidder equal to ten per cent of the total of his bid with sufficient sureties, conditioned that if said bid shall be accepted the party bidding will duly enter into the contract and faithfully perform his contract, in accordance with his bid and the plans and specifications. Said bidder's bond to be made payable to the State of California. Said bidder's bond should not be enclosed in the sealed envelope with the proposal, but should be delivered separately to the Secretary of the California Highway Commission.

A common-law bond will be required for the faithful performance of the contract in such sum as shall be fixed by the California Highway Commission after the bids are opened; said sum shall not be less than one fourth and not more than one half of the estimated amount of the contract; and a further bond in a sum equal to one half of the estimated amount of the contract must be furnished as required by the terms of an act entitled, "An act to secure the payment of the claims of materialmen, mechanics, or laborers employed by contractors upon state, municipal and other public works," approved March 27, 1897, and acts amendatory thereof.

The contractor to whom the contract may be awarded will be required to appear at the office of the California Highway Commission, with the sureties offered by him, and execute the contract within ten days (not including Sunday) from the date of the notification of such award and the preparation and readiness for signature of the contract; and in case of failure or neglect so to do he will be considered as having abandoned it, and said bidder's bond will operate.

All bids are to be compared on the basis of the Highway Engineer's estimate of the quantities of work to be done as follows:

Item	1.	21,466	cu.yds.	Excavation without classification.
Item	2.	70	cu.yds.	Class A Portland Cement Concrete.
Item	3.	170	cu.yds.	Class B Portland Cement Concrete.
Item	4.	10,570	cu.yds.	Class C Portland Cement Concrete.
Item	5.	428	lin.ft.	16" Reinforced Concrete Pipe.
Item	6.	42	lin.ft.	18" Reinforced Concrete Pipe.
Item	7.	684,955	sq. ft.	Asphalt Surface one (1) inch thick.

The foregoing quantities are approximate only, being given as a basis for the comparison of bids, and the Department of Engineering does not expressly or by implication agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, as may be deemed necessary or expedient by the said Commission.

Plans may be seen and forms of specification and contract may be obtained at the office of the Commission, Forum Building, Sacramento, and at the office of the Division Engineer at Rialto Bldg., San Francisco

The right is reserved to reject any and all proposals, or to accept the proposal deemed best for the State of California.

The contract is subject to the approval of the Advisory Board of the Department of Engineering and the Attorney General of the State of California.

BURTON A. TOWNE,
CHARLES D. BLANEY,
NEWELL D. DARLINGTON,
California Highway Commission.
AUSTIN B. FLETCHER,
Highway Engineer.
WILSON R. ELLIS,
Secretary.

SACRAMENTO, CAL., May 21, 1912.

(Copy)

PROPOSAL TO THE

Department of Engineering through the California Highway Commission

For constructing a portion of a state highway in the county of San Mateo between South San Francisco and Burlingame Division IV; Route 2; Section A.

To the California Highway Commission:

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of contract, and the plans therein referred to; and he proposes, and agrees if this proposal is accepted, that he will contract with the State of California, in the form of the copy of the contract annexed hereto, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following sums, to wit:

Item 1. For all excavation of every description, without classification, including all incidental work, the sum of Thirty Seven Cents

($ .37) per cubic yard.

Item 2. For all Class A Portland cement concrete in place, including all incidental work, the sum of Ten Dollars

($ 10.00) per cubic yard.

Item 3. For all Class B Portland cement concrete in place, including all incidental work, the sum of Eight Dollars

($ 8.00) per cubic yard.

Item 4. For all Class C Portland cement concrete in place, including all incidental work, the sum of Four & 86/100 Dollars

($ 4.86) per cubic yard.

Item 5. For all 16″ reinforced concrete pipe in place, including all incidental work, the sum of One & 25/100 Dollars

($ 1.25) per ~~cubic yard.~~ **lineal foot.**

Item 6.—For all 18″ reinforced concrete pipe in place, including all incidental work, the sum of One & 50/100 Dollars

($ 1.50) per ~~cubic yard.~~ **lineal foot.**

Item 7. For all asphalt surface in place, including all incidental work, the sum of Four Cents

($ .04) per square foot.

Accompanying this proposal is a bidder's bond payable to the State of California equal in amount to ten per cent of the total of the bid. If this proposal shall be accepted and the undersigned shall fail to contract as aforesaid and to give the two bonds in the sums to be determined as aforesaid with surety satisfactory to the California Highway Commission, within ten days (not including Sunday) from the date of the mailing of a notice from the Commission to him, according to the address herewith given, that the contract is ready for signature, the Commission, may, at its option, determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the said bidder's bond shall operate.

Signature of bidder F. R. Ritchie & Co. By Frank R. Ritchie

Business address 409 Chronicle Bldg. San Francisco

Place of residence

Date 24 June, 191 7.

The full names and residences of all the persons and parties interested in the foregoing proposal as principals are as follows:

(NOTICE.—Give first and last names in full; in case of corporations give names of president, treasurer and manager, and in case of partnerships give the names of the individual co-partners.)

I am the only person interested in the above concern.

Frank R. Ritchie

The proposed surety company on the bonds to be given is as follows:

Name Massachusetts Bonding & Insurance Co.

Address of home office Boston, Mass.

California address First Nat'l Bank Bldg. S.F.

STATE OF CALIFORNIA

DEPARTMENT OF ENGINEERING

CALIFORNIA HIGHWAY COMMISSION

CONTRACT FOR CONSTRUCTING A PORTION OF A STATE HIGHWAY

In the county of San Mateo

between South San Francisco

and Burlingame

Division IV; Route 2; Section A.

THIS AGREEMENT, made and concluded, in triplicate, this 26th day of June, one thousand nine hundred and twelve, between the State of California, by the Department of Engineering thereof, party of the first part, and F. R. Ritchie & Co.

---, party of the second part.

ARTICLE I.—Witnesseth, That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the said party of the first part, and under the conditions expressed in the two bonds, bearing even date with these presents, and hereunto annexed, the said party of the second part agrees with the said party of the first part, at his own proper cost and expense, to do all the work and furnish all the materials, except such as are mentioned in the specifications to be furnished by the party of the first part, necessary to construct and complete in a good, workmanlike and substantial manner and to the satisfaction of the California Highway Commission, a portion of the state highway in the county of San Mateo between South San Francisco

---

and Burlingame

Division IV; Route 2; Section A; in accordance with the specifications hereto annexed and made a part hereof, and in full compliance with the terms of this agreement.

ARTICLE II.—Whenever the words "Department of Engineering," are used in this contract they shall be understood to mean the Department of Engineering of the State of California, or its officers or authorized assistants limited by the particular duties entrusted to them.

Whenever the words "California Highway Commission," or "Commission," are used in this contract they shall be understood to mean the executive committee of the Advisory Board of said Department of Engineering composed of the three appointed members thereof.

Whenever the word "Engineer" is used in this contract, or in the specifications annexed, it shall be understood to mean the person holding the position of Highway Engineer of the Department of Engineering, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Whenever the word "Contractor" is used it shall be understood to mean the person or persons, co-partnership or corporation, private or municipal, who have entered into this contract as party or parties of the second part, or his or their legal representatives.

ARTICLE III.—The said Contractor agrees to give his personal attention to the fulfillment of this contract, and not to sublet the same, but to keep the contract under his control. Portions of the contract may be assigned, and portions of the work sublet only upon the written consent of the California Highway Commission.

ARTICLE IV.—The said Contractor at his own proper costs and charges shall furnish the necessary appliances, implements, tools, molds, ways and all necessary means and conveniences for the transfer of the material to its proper place in the work. And it is also understood that the State of California shall not be held responsible for the care or protection of any material or parts of the work.

ARTICLE V.—It is further agreed that the Department of Engineering and its officers and authorized assistants shall at all times have access to the work during its construction, and shall be furnished with every reasonable facility for ascertaining that the stock and materials used and employed, and the workmanship, are in accordance with the requirements and intentions of this contract; all work done and all materials furnished shall be subject to the inspection and approval of the Highway Engineer.

The Contractor shall, after receiving written notice from the Engineer to that effect, proceed to remove to a satisfactory distance from the work all materials condemned by said Engineer, whether worked or unworked, and remove all portions of the work which the said Engineer shall condemn as unsound or improper, or as in any way failing to conform to the specifications, and shall cover, protect and exercise due diligence to secure the work from injury, and all damage happening to the same shall be made good by the Contractor.

ARTICLE VI.—Should said Department of Engineering, through said Commission, at any time during the progress of said construction, request any alterations or deviations, additions, or omissions, from the specifications, said Contractor shall make such alterations or deviations, and the same shall in no way affect or make void this contract, but will be added to or deducted from the amount to be paid hereunder by a fair and reasonable valuation as provided by law.

ARTICLE VII.—Whenever in the opinion of the Commission the said work is neglected by the said Contractor or the same is not prosecuted with the diligence and force specified, meant and intended in and by the terms of this contract, it shall be lawful for such Department of Engineering to make a requisition upon such Contractor for said additional specific force or such additional specific material to be brought into the work under this contract, or to remove improper material from the grounds as in the judgment of said

Commission this contract and its due and faithful fulfillment require, of which action of said Department of Engineering due notice in writing of not less than five days shall be served upon said Contractor or his agent having charge of the work, and if the said Contractor fail to comply with such requisition within fifteen days, it shall be lawful for the Commission to employ upon such work the additional force or supply the materials as specifically required as aforesaid. And the amount paid for such additional force or material shall be charged against the Contractor and be deducted from his next or subsequent estimate and payment, or the same or any part thereof not so deducted may be recovered from the said Contractor or his sureties.

ARTICLE VIII.—The Contractor shall not cause any unnecessary delay or hindrance to other contractors on said work, and shall bear all damages done to the work of such other contractors by his employees.

ARTICLE IX.—Should it appear that the work hereby intended to be done, or any of the matters relative thereto, are not sufficiently detailed or explained in the said specifications, the Contractor shall apply to the Engineer for such further explanations as may be necessary, and shall conform to the same as part of this contract, so far as may be consistent with the original specifications; and in the event of any doubt or question arising respecting the true meaning of the specifications, reference shall be made to the Department of Engineering, whose decision thereon shall be final and conclusive, and it is understood that no advantage will be taken of any discrepancy that may be found in any plan or specification.

ARTICLE X.—The State of California, the Department of Engineering, and said Commission, will not, in any manner, be answerable or accountable for any loss or damage that shall or may happen to the said work or any part thereof, respectively, or for any of the materials or other things used or employed in finishing and completing the said work; or for injury to any person or persons, either workmen or the public, or for damage to adjoining property, from any cause which might have been prevented by the Contractor, or his workmen, or by any one employed by him, against all of which injuries or damages to persons and property the Contractor having control over such work must properly guard, and must make good all damage from whatever cause, being strictly responsible for the same. And said Contractor further agrees that he will be responsible for any damage to any person or property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before its completion and final acceptance, and that he will indemnify and save harmless the State of California, the Department of Engineering, and the California Highway Commission, from all suits or actions of every name and description, brought for, or on account of any injuries or damages received or sustained by any person or persons, by or from said Contractor, his servants or agents, in the construction of said work or by or in consequence of any negligence in guarding the same, in improper materials used in its construction, or by, or on account of any act or omission of the said Contractor or his agents; and the said Contractor further agrees that so much of the money due to him under and by virtue of this agreement as shall be considered necessary by the California Highway Commission may be retained by the State of California until such suits or claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Commission. Where there are different contractors employed on the work, each shall be responsible to the other for all damage to work, to person or property, or for loss caused by neglect, by failure to finish work at the proper time, thus preventing each portion of the work being finished by the several contractors at the date named herein for completion, or from any other cause. And to any loss to the Contractor by fire or earthquake the State of California, the Department of Engineering, and the California Highway Commission will not under any circumstances be answerable or accountable.

ARTICLE XI.—Said Contractor further agrees that he will pay all bills for labor, materials and supplies contracted for by him on account of the work herein contemplated, and that he will furnish the California Highway Commission at its request with evidence, satisfactory to said Commission, that all persons who have done work or furnished materials or supplies under this contract, and all claims of private corporations or individuals for damage of any kind caused by the construction of said work have been fully paid or satisfactorily secured, and in case such evidence is not furnished, said State of California may retain out of any amounts due said Contractor sums sufficient to cover any such unpaid claims, provided that sworn statements of said claims shall have been filed in the office of the Department of Engineering or in the office of any other state officer or officers as provided by law, and said claims may be paid by the proper state officer or officers who may be authorized by law out of the amounts so retained, it being understood and agreed that this article of the contract shall be construed as giving protection to persons having lawful claims against the Contractor in addition to that afforded by the two bonds which the Contractor is required to furnish. The Department of Engineering may also, with the written consent of the Contractor, use any moneys in the possession of the State of California belonging to the said Contractor, for the purpose of paying for both labor and materials for the work.

ARTICLE XII.—It is further agreed by the parties hereto that in case all the work called for under said contract, in all parts and requirements, is not finished or completed before the first day of December 1912, damage will be sustained by the State of California, and that it is and will be difficult and impossible to ascertain and determine the actual damage which the State will sustain in the event of and by reason of such delay; and it is therefore agreed that said contractor will pay to the said Department of Engineering the sum of fifty ($50.00) dollars per day for each and every day's delay beyond the time herein prescribed, in finishing the said work; and said contractor agrees to pay said liquidated damages as herein provided, and in case the same is not paid agrees that said Department of Engineering may deduct the amount thereof from any money due or that may become due said contractor under this contract.

ARTICLE XIII.—And the said Contractor agrees to receive and accept the following prices as full compensation for furnishing all materials and for doing all the work contemplated and embraced in this agreement; also for all loss or damage, arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the Department of Engineering through the California Highway Commission; and for all risks of every description connected with the work; also for all expenses incurred by or in consequence of the suspension or discontinuance of work, and for well and faithfully completing the work, and the whole thereof, in the manner and according to the plans and specifications, and the requirements of Engineer under them, to wit:

Item 1. For all excavation of every description, without classification, including all incidental work, the sum of Thirty Seven Cents

($ .37) per cubic yard.

Item 2. For all Class A Portland cement concrete in place, including all incidental work, the sum of Ten Dollars

($ 10.00) per cubic yard.

Item 3. For all Class B Portland cement concrete in place, including all incidental work, the sum of Eight Dollars

($ 8.00) per cubic yard.

Item 4. For all Class C Portland cement concrete in place, including all incidental work, the sum of Four & 86/100 Dollars

($ 4.86) per cubic yard.

Item 5. For all 16″ reinforced concrete pipe in place, including all incidental work, the sum of One & 25/100 Dollars

($ 1.25) per ~~cubic yard.~~ **lineal foot.**

Item 6.—For all 18″ reinforced concrete pipe in place, including all incidental work, the sum of One & 50/100 Dollars

($ 1.50) per ~~cubic yard.~~ **lineal foot.**

Item 7. For all asphalt surface in place, including all incidental work, the sum of Four Cents

($ .04) per square foot.

ARTICLE XIV.—And it is hereby stipulated and agreed that the Department of Engineering through the California Highway Commission shall, once in each month, cause an estimate in writing to be made by the Highway Engineer, of the total amount of work done and the acceptable materials furnished and delivered by the Contractor on the ground and not used, to the time of such estimate, and the value thereof. The State of California shall retain fifteen per cent of such estimated value of the work done and not more than fifty per cent of the value of the materials so estimated to have been furnished and delivered and unused as aforesaid as part security for the fulfillment of this contract by the Contractor, and shall monthly pay to the Contractor while carrying on the work the balance not retained as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of this contract. No such estimate or payment shall be required to be made when, in the judgment of the Highway Engineer, the work is not proceeding in accordance with the provisions of this contract, or when in his judgment the total value of the work done since the last estimate amounts to less than three hundred dollars ($300.00). The Department of Engineering through the California Highway Commission may, if it deems it expedient so to do, cause estimates to be made more frequently than once in each month, and it may cause payments to be made more frequently to the Contractor.

The Highway Engineer shall, as soon as practicable after the completion of this contract, make a final estimate of the amount of work done thereunder, and the value of such work, and the State of California shall, at the expiration of thirty-five days from and after such final estimate is so made and is approved by the Department of Engineering, pay the entire sum so found to be due hereunder after deducting therefrom all previous payments and all amounts to be kept and all amounts to be retained under the provisions of this contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

ARTICLE XV.—It is further agreed that nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil; but all such materials shall, upon being so attached or affixed, become the property of the State of California.

ARTICLE XVI.—It is further agreed that the said Contractor shall, before entering on the performance of the work herein provided, furnish a bond as required by the terms of an act entitled "An act to secure the payment of the claims of materialmen, mechanics, or laborers employed by contractors upon state, municipal and other public works," approved March 27, 1897, and acts amendatory thereof.

ARTICLE XVII.—It is further stipulated and agreed between the respective parties hereto that the said Contractor shall forfeit, as penalty to the State of California, ten dollars ($10.00) for each laborer, workman or mechanic employed, in the execution of this contract by him or by any sub-contractor under him, upon any of the work hereinbefore mentioned, for each calendar day, during which such laborer, workman or mechanic is employed or permitted to labor more than eight hours, and no Chinese or Mongolian labor shall be employed.

ARTICLE XVIII.—It is further stipulated and agreed between the respective parties hereto that the minimum compensation to be paid for labor by said parties of the second part on the work performed by said Contractor on said work shall not be less than two dollars ($2.00) per day.

ARTICLE XIX.—It is further stipulated and agreed that the Contractor shall keep himself fully informed of all existing and future state and national laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all such orders and decrees

of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the plans, drawings or specifications or contract for this work in relation to any such law, ordinance, regulation, order or decree, he shall forthwith report the same to the California Highway Commission in writing. He shall at all times himself observe and comply with, and shall cause all his agents and employees to observe and comply with, all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the State, the Department of Engineering, the California Highway Commission, the Highway Engineer, and all of its and their officers and agents and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

ARTICLE XX.—It is further expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the bid or proposal of said Contractor, then this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said proposal conflicting herewith.

ARTICLE XXI.—It is mutually agreed between the parties hereto, that no certificate given or payments made under this contract, except the final certificate or final payment, shall be conclusive evidence of the performance of this contract, either wholly or in part, against any claim of the party of the first part, and then not until the lapse of thirty-five days after acceptance of the work by the Department of Engineering, and no payment shall be construed to be an acceptance of any defective work or improper materials.

ARTICLE XXII.—The said party of the first part hereby promises and agrees with the said Contractor to employ, and does hereby employ, the said Contractor to provide the materials and to do the work according to the terms and conditions herein contained and referred to, for the prices aforesaid, and hereby contracts to pay the same at the time, in the manner and upon the conditions above set forth; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.

ARTICLE XXIII.—And the said Contractor hereby further agrees that the payment of the final amount due under this contract, and the adjustment and payment of the bill rendered for any work done in accordance with any alterations of the same, shall release the State of California, the Department of Engineering, and the California Highway Commission, from any and all claims or liability on account of work performed under this contract or any alteration thereof.

ARTICLE XXIV.-It is further understood and agreed that no member of the Department of Engineering, or the California Highway Commission, or the Highway Engineer, or any other officer or authorized assistant of said Department or Commission shall be personally responsible for any liability arising under the contract.

IN WITNESS WHEREOF, The parties to these presents have hereunto set their hands the year and date first above written.

STATE OF CALIFORNIA,
By the Department of Engineering, acting by and through the appointed members of the Advisory Board of the Department of Engineering, known as the California Highway Commission, thereunto duly authorized by resolution of said Board, dated January 23, 1912.

Lewis Hoover
Chas. T. Harvey
W. D. Darlington

F R Ritchie & Co
By Frank R Ritchie
Contractor.

I hereby certify that I have examined the within contract and find the same to be in accordance with the provisions of an act entitled, "An act to regulate contracts on behalf of the State in relation to the erection, construction, alteration, repair, or improvement of any state structure, building, road, or other state improvement of any kind and to repeal an act entitled 'An act to regulate contracts on behalf of the state in relation to erections and buildings,' approved March 28, 1876"; Approved March 22, 1909.

Attorney General of the State of California.

Dated, July 26, 1912.

BOND TO ACCOMPANY CONTRACT.

KNOW ALL MEN BY THESE PRESENTS,

That we F. R. Ritchie & Co.

as principal, and

SOUTHWESTERN SURETY INSURANCE COMPANY

as suret____, are held and firmly bound unto the State of California, in the sum of Forty-four Thousand Six Hundred and Eighty-four Dollars and Forty-one Cents dollars ($44 684.41), to be paid to the said State or its certain attorney, its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, joint and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if the above bounden F. R. Ritchie & Co

heirs, executors, administrators, successors and assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the foregoing contract and any alteration thereof made as therein provided, for constructing a portion of a state highway in the county of San Mateo, on his or their part to be kept and performed, at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the said State of California, its officers and agents, as therein stipulated, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and virtue.

In Witness Whereof, We hereunto set our hands and seals on this 26th day of June, in the year 1913.

F. R. Ritchie & Co. (Seal.)

By Frank R. Ritchie (Seal.)

SOUTHWESTERN SURETY INSURANCE COMPANY (Seal.)

By Edward P. Fengler (Seal.)

RESIDENT VICE-PRESIDENT.

Attest A. McAllen (Seal.)

RESIDENT ASST. SECRETARY.

Witness: _____

13

STATE OF CALIFORNIA,

COUNTY OF _____, } ss.

_____

_____

the sureties named in the foregoing and annexed bond, being duly sworn, each for himself, doth depose and say: That he is a resident and freeholder within the State of California, and is worth the sum of _____

_____ dollars, specified in said bond, over and above all his debts and liabilities, exclusive of property exempt from execution.

_____

_____

Subscribed and sworn to before me, this_____

day of _____, A. D. 191____.

_____

Notary Public in and for the County of

_____, State of California.

BOND TO ACCOMPANY CONTRACT.

KNOW ALL MEN BY THESE PRESENTS.

That we, F. R. Ritchie & Co

as principal, and SOUTHWESTERN SURETY INSURANCE COMPANY
A Corporation erected, organized and existing under and by virtue of the laws of the STATE OF OKLAHOMA

as sureties, are held and firmly bound unto the State of California, in the sum of Forty-four Thousand Five Hundred and Eighty-four Dollars and Forty-one Cents dollars ($ 44 684.41), said sum being one half (½) of the estimated amount of the foregoing contract, to be paid to the said State or its certain attorney, its successors or assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH

That if the above bounden F. R. Ritchie & Co heirs, Executors, administrators, successors and assigns

shall pay or satisfactorily secure the payment of all labor, materials and supplies furnished for constructing under the foregoing contract, a portion of a state highway in the county of San Mateo as therein stipulated, and as required by the provisions of an act of the legislature, approved March 27, 1897, entitled "An act to secure the payment of the claims of materialmen, mechanics or laborers employed by contractors upon state, municipal or other public works," and the acts amendatory thereof, then this obligation shall have no effect; otherwise it shall remain in full force and virtue.

In Witness Whereof, We have hereunto set our hands and seals on this 16 day of June, 1912.

F R Ritchie & Co (Seal.)
By Frank R Ritchie (Seal.)
SOUTHWESTERN SURETY INSURANCE COMPANY (Seal.)
By Edward P. Spengler (Seal.)
ASSISTANT VICE-PRESIDENT
Attest J. Mallon
RESIDENT ASST. SECRETARY

Witness: _____.

15

STATE OF CALIFORNIA,

COUNTY OF _____, } ss.

_____

_____

the sureties named in the foregoing and annexed bond, being duly sworn, each for himself, doth depose and say: That he is a resident and freeholder within

the State of California, and is worth the sum of _____

_____ dollars, specified in said bond, over and above all his debts and liabilities, exclusive of property exempt from execution.

_____

_____

Subscribed and sworn to before me, this_____

day of _____, A. D. 191____.

_____

Notary Public in and for the County of

_____, State of California.

STATE OF CALIFORNIA

DEPARTMENT OF ENGINEERING

CALIFORNIA HIGHWAY COMMISSION

SPECIFICATIONS FOR CONSTRUCTING A PORTION OF A STATE HIGHWAY

In the county of San Mateo between South San Francisco and Burlingame; Division IV; Route 2; Section A.

(Annexed to Contract No. ----/--------.)

LOCATION.

Section 1. The highway referred to herein is in the county of San Mateo, State of California, and was declared and adopted as a state highway by vote of the Advisory Board of the Department of Engineering May 21, 1912, as State Highway Layout No. 1. The highway to be constructed begins at a point about 900 feet south of the southwesterly boundary of the city of South San Francisco and extends southerly for a distance of about 5.4 miles to the northerly boundary of the city of Burlingame (Station 264 to Station 549+39.81), and the location of said highway is further shown upon a plan entitled "State of California; Department of Engineering; California Highway Commission; Plan and Profile of Proposed State Highway in San Mateo County from South San Francisco to Burlingame. Scales Plan: 1 in. = 100 Ft.; Profile: Hor. 1 in. = 100 Ft.; Vert. 1 in. = 20 Ft.; April 24, 1912. A. E. Loder, Division Engineer; Approved May 1, 1912, A. B. Fletcher, Highway Engineer; Burton A. Towne, Charles D. Blaney, N. D. Darlington, California Highway Commission," which said plan is hereby made a part of these specifications.

IV, S M, 2, A—19.

WORK TO BE DONE.

Section 2. The work to be done consists of the following, viz.: To furnish all labor, implements, tools, machinery and materials, except as herein otherwise specified, required to construct and put in complete order for use the said road, including culverts, fences and other appertaining structures, and to leave the grounds in a neat condition. Said work to be done is shown in part on the plan hereinbefore referred to and upon a set of cross-sections on file in the office of the Engineer, which said cross-sections are hereby made a part of these specifications.

QUANTITIES.

Section 3. The following is an estimate of the quantities of work to be done and materials to be furnished; the quantities are to be considered as approximate only, and the Department of Engineering may increase or decrease them, as may be deemed necessary or expedient by the Engineer.

Item 1.	21,466	cu.yds.	Excavation without classification.
Item 2.	70	cu.yds.	Class A Portland Cement Concrete.
Item 3.	170	cu.yds.	Class B Portland Cement Concrete.
Item 4.	10,570	cu.yds.	Class C Portland Cement Concrete.
Item 5.	428	lin.ft.	16" Reinforced Concrete Pipe.
Item 6.	42	lin.ft.	18" Reinforced Concrete Pipe.
Item 7.	684,955	sq. ft.	Asphalt Surface one (1) inch thick.

GENERAL PROVISIONS.

Section 4. The work is to be commenced within fifteen (15) days after the execution of the contract and to be diligently prosecuted to completion in such order as may be prescribed by the Engineer.

Section 5. The Contractor is to furnish free of charge all stakes and such temporary structures as may be necessary for marking and maintaining points and lines given by the Engineer and is to give the Engineer such facilities and materials for giving said lines and points as he may require; and the Engineer's marks must be carefully preserved.

Section 6. If any person employed by the Contractor shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, he shall be discharged immediately on the requisition of the Engineer, and such person shall not again be employed on the work. Whenever the Contractor is not present on any part of the work where it may be desired to give direction, orders will be given by the Engineer; and shall be received and obeyed by the superintendent or foreman who may have charge of the particular work in reference to which the orders are given.

Section 7. The Contractor shall, at his own expense, preserve and protect from injury such roadside trees as the Engineer shall specify, and if so directed by the Engineer, he shall cover the trunks with burlap or drive stakes around them in a manner satisfactory to the Engineer. All trees which the Engineer shall consider to be useful for shade or other purposes shall be cared for by the Contractor as the Engineer shall direct, and no trees within the limits of the right of way of the road shall be cut or otherwise removed without the consent in writing of the Engineer.

All fences along the state highway shall be protected by the Contractor and if they are injured or destroyed they, and any other property injured by the Contractor, his employees or agents, shall be restored to a condition as good as it was when he entered upon the work.

Section 8. The Contractor shall examine all bridges and culverts on or near the work or over which he shall move his implements or equipment and shall properly strengthen such structures where necessary before he uses them. He will be held responsible for any and all damage to such bridges and culverts caused by steam road rollers or other implements and equipment.

Section 9. The Contractor shall provide and maintain such fences, barriers, "Road Closed" signs, red lights and watchmen and other means as may be necessary to prevent accidents to the public.

Section 10. After the completion of the work, the Contractor shall remove all temporary structures built by him and all surplus materials of all kinds from the site of the work and leave the whole clean and presentable.

EXCAVATIONS AND EMBANKMENTS.

Section 11. **(a)** The road shall be graded according to the plan and cross-sections hereinbefore mentioned and true to the lines and grades shown thereon and as given by the Engineer.

(b) All trees, stumps, roots and vegetation within the road bed and slopes shall be grubbed out and removed when directed by the Engineer.

(c) All soft or unsuitable material shall be removed and the space refilled with good earth or gravel, as directed by the Engineer.

(d) The Contractor shall grade according to the Engineer's directions, a safe, proper and workmanlike connection with each intersecting public or private road or driveway.

(e) Ditches shall be excavated by the Contractor in such places and of such dimensions as the Engineer may direct, at the contract price for excavation.

(f) All material from cuts shall be placed in embankment as directed by

the Engineer. It shall be optional with the Engineer to allow the Contractor to waste material from cuts and construct embankments from borrowed material in lieu of the same, but in such cases the work shall be estimated for payment the same as if the material had been hauled from excavation to embankment as above contemplated.

(g) Where the amount of material excavated from the roadway is insufficient to make the embankments, the extra material required shall be furnished by the Contractor from borrow-pits. If borrow-pits are located within the right of way, their location, cross-section and grades shall be as approved by the Engineer.

(h) Where the quantity of excavation exceeds that required to make embankments, the surplus shall be used to widen the embankments or be wasted, as the Engineer may direct.

(i) Embankments shall be formed of suitable material and carried up full width in layers not to exceed one foot in thickness, and the teams shall be made to travel as evenly as possible over the whole surface of each layer, both going and coming.

(j) All clods or hard lumps of earth larger than six inches in greatest thickness shall be broken up before being placed in embankment.

(k) The entire roadway shall be ploughed and broken up where directed by the Engineer, to allow new and old material to bond together.

(l) Embankments shall be carried to such height above grade and to such increased width as the Engineer may deem necessary for shrinkage and compression, and they must be maintained by the Contractor to their proper height, dimension and slope until the work is finally accepted.

(m) After fills and cuts are graded, the entire width of the roadway shall be thoroughly watered and rolled with a roller weighing not less than 200 pounds per inch width of tire, until the surface is smooth and unyielding. Depressions below the required grade and cross-section shall be filled with fresh material and rolled as before.

(n) Excavations and embankments shall be finished with all slopes cut true and straight in conformity with the lines and grades of slope directed by the Engineer, and all slopes, whether old or new, shall be left with neat and even surfaces.

(o) The length of a gross haul shall be determined by the distance from the center of any mass in place before excavation to the center of the same mass after being deposited in proper place in embankment. When such distance is 1000 feet or less, no payment for overhaul shall be made, it being understood that a "free haul" of 1000 feet is covered by the contract price for excavation. The "over haul" shall be the gross haul less 1000 feet.

(p) The contract price per cubic yard for excavation shall include the excavation, loading, transportation, and deposit of the material in accordance with these specifications, and also all grubbing and clearing, culvert excavation, ditching, and all other work incidental to the grading.

(q) Quantities to be paid for shall be computed by the method of average end areas, and all measurements of earthwork shall be made in excavation.

(r) Excavation for culverts, bridges or other structures shall be estimated to include one foot beyond the outside limits of the footings or walls and with vertical slopes.

(s) Excavation in excess of the cross-section authorized by the Engineer shall not be paid for.

(t) Over haul shall be paid for at the rate of one cent per cubic yard per 100 feet of over haul.

CONCRETE CULVERTS, END WALLS, ETC.

Section 12. **(a)** Concrete culverts, end walls, drop inlets and retaining walls shall be constructed where ordered by the Engineer to the lines and grades given by him and in accordance with the standard or special designs shown on the plan, using therefor Class A, Class B or Class C concrete (as specified in Section 13 of these specifications) as the Engineer shall elect. All concrete used for such purposes shall be mixed and placed as provided in said section.

(b) All steel reinforcement shall be furnished by the Commission to the Contractor at the railroad freight station nearest to the site of the work. The Contractor shall at his expense haul such steel to the work and place it in the forms as directed by the Engineer.

(c) All culvert masonry shall be measured in accordance with the dimensions shown on the plan, and no allowance shall be made for coffer dams, pumps, labor, etc., which may be necessary on account of water. The price paid for concrete shall include the hauling and placing of the steel reinforcement and all other incidental work.

CONCRETE.

Section 13. **(a)** The cement shall conform to the Standard Specifications for Portland cement adopted by the American Society for Testing Materials, August 16th, 1909, with subsequent amendments.

(b) All tests shall be made in accordance with the methods specified in the Final Report of the Special Committee on Uniform Tests of Cement of the American Society of Civil Engineers, presented January 17, 1912, with subsequent amendments.

(c) The cement shall be suitably protected from exposure to moisture until used, and shall be so piled as to permit of access for tally, inspection and identification of each shipment. It shall be delivered in the original package with the brand and the name of the manufacturer plainly marked thereon.

(d) All cement, the samples of which do not pass the above specifications, and all cement which may have become damaged by exposure to moisture shall be immediately and permanently removed from the work.

(e) The fine aggregate shall consist of an approved material of siliceous, granitic or igneous origin, hard, durable and free from mica in excess of five (5) per cent by weight. It shall be free from oil or organic matter, and must not contain more than six (6) per cent by weight of clay, silt and other material passing a No. 100 Standard Sieve. It shall all pass a No. 4 Standard Sieve, and at least fifty (50) per cent, but not more than eighty-five (85) per cent by weight, shall be retained on a No. 30 Standard Sieve.

(f) The coarse aggregate shall be sound gravel or broken stone, having a specific gravity of not less than 2.6, which shall be clean and free from all foreign matter, uniformly graded, and shall range in size from one-fourth inch up to one and one-half inches for Class "A" concrete, and from one-fourth inch up to two and one-half inches for other classes of concrete.

(g) The water used in mixing the concrete shall be clean, free from oil, acid, alkalies or vegetable matter.

(h) **Class A Concrete** shall consist of one cubic foot (94 lbs.) of Portland cement, two cubic feet of fine aggregate and four cubic feet of coarse aggregate.

(i) **Class B Concrete** shall consist of one cubic foot (94 lbs.) of Portland cement, two and one half cubic feet of fine aggregate, and five cubic feet of coarse aggregate.

(j) **Class C Concrete** shall consist of one cubic foot (94 lbs.) of Portland cement, three cubic feet of fine aggregate, six cubic feet of coarse aggregate.

(k) The ingredients of the concrete shall be thoroughly mixed, sufficient water being added to obtain the desired consistency, and the mixing continued until the materials are uniformly distributed, and each particle of fine aggregate is thoroughly coated with cement, and each particle of coarse aggregate is thoroughly coated with mortar.

(l) Where a mechanical mixer is used, the materials must be proportioned dry in separately measured batches, and all deposited at the same time. The mixer must produce a concrete of uniform consistency and color, with the stones thoroughly mixed with the water, sand and cement.

(m) Sufficient water shall be added during the process of mixing to produce a wet, plastic mixture which will flush readily under light tamping, but which can be handled without causing a separation of the coarse aggregate from the mortar. The quantity of water used shall be modified as directed by the Engineer, to meet the conditions of the work being placed.

(n) All concrete shall be used while fresh and before it has taken an initial set. Re-tempering with additional water, any concrete that has partially hardened, shall not be permitted.

(o) The forms shall be smooth, tight, true to the required lines and grade, and of sufficient strength to resist springing out of shape during the placing of the concrete. All mortar and dirt shall be removed from forms previously used, they shall be thoroughly moistened immediately before concrete is placed against them; they shall remain in place until the Engineer authorizes their removal; and they shall be removed in such order as he may direct.

(p) Concrete, when mixed, shall be immediately deposited without any separation of its ingredients, and thoroughly rammed and tamped or spaded in layers not more than six inches in depth, until it is thoroughly compact and until free mortar appears on the surface and all voids are filled. It shall not be permitted to fall from any considerable height.

(q) It shall not be placed under water except with the consent of the Engineer, and in such event, shall be deposited in a compact mass in such manner that the cement and fine aggregate will not be separated from the stones. Concrete shall not be laid in running water.

(r) Any voids discovered in the surface of the concrete shall be repaired by removing the defective work and refilling the space with one to one cement mortar. Exposed surfaces shall be finished smooth and uniform by removing all form marks and imperfections. A neat cement grout shall be applied over the entire surface, if directed by the Engineer.

(s) When joining new concrete with concrete already set, the surface shall be cleaned, roughened, thoroughly watered and coated with a thin mortar, composed of neat cement.

(t) The concrete in each floor slab or girder shall be placed continuously. The concrete in arches shall be placed in a manner acceptable to the Engineer.

(u) Reinforcing rods shall be placed as shown on the plans, wired at intersecting rods and held firmly in place until embedded in concrete.

(v) During the first five days after placing, the concrete shall be kept moist and protected against injury until it has thoroughly set.

REINFORCED CONCRETE PIPE CULVERTS.

Section 14(a) Reinforced concrete pipe culverts of the dimensions required shall be laid where called for by the plan or ordered by the Engineer. Each end of every pipe culvert shall be protected by a concrete wall.

(b) The pipe shall be made of Class A concrete of the consistency known as wet concrete. It shall have a uniform thickness of two and one half ($2\frac{1}{2}$) inches. No part of the coarse aggregate shall be greater in its longest diameter than three quarters ($\frac{3}{4}$) of an inch.

(c) The longitudinal reinforcement shall consist of four (4) rods $\frac{1}{8}''$ by $\frac{1}{2}''$ equally spaced around the pipe. The rods shall be so shaped at their ends as to provide for the locking together of adjacent pipes. Spiral reinforcement shall consist of deformed rods uniformly spaced at intervals of not over nine (9) inches, and the weight of spiral reinforcement per foot of pipe shall not be less than one tenth (1/10) pound per inch of internal diameter of pipe. Mesh reinforcement of equal weight may be substituted for the rods if approved by the Engineer. Longitudinal and circular reinforcement shall be wired together and so placed in the form as to be approximately in the middle of the concrete.

(d) The forms shall be of cast iron and steel, and of an approved standard type. They shall not be disturbed for thirty-six hours after the placing of the concrete. All pipes shall be kept covered and damp for six days after casting. No pipe shall be used until it has cured for at least two weeks.

(e) The pipes, laid carefully to line and grade in a trench which has been excavated to fit the curve of the pipe, shall be locked one to another, and the joints properly grouted.

(f) The back-filling in pipe trenches shall be thoroughly tamped in thin layers, to the satisfaction of the Engineer.

(g) The price per lineal foot of pipe shall include the cost of the pipe complete, including reinforcement, and the trenching, laying, and back-filling for the same, and all other incidental work. The head walls will be paid for separately as Class B concrete.

SHAPING SUB-GRADE.

Section 15 **(a)** Before the pavement or shoulder material is placed the road bed shall be graded to a true cross-section conforming to the grades given by the Engineer and the section called for on the plan.

(b) It shall be thoroughly watered and rolled until the surface is smooth and unyielding.

(c) Depressions shall be filled with fresh material and the watering and rolling continued as before.

(d) Where a uniform and unyielding surface can not be otherwise obtained, the surface shall be cultivated and again puddled with water and rolled until a true and firm foundation is secured.

(e) No surfacing material shall be applied until the sub-grade is in condition acceptable to the Engineer.

(f) The cost of shaping and preparing the sub-grade shall be considered as included in the price for the surfacing.

TIMBER HEADERS.

Section 16. **(a)** Timber Headers of 2″ x 6″ planks placed on edge and securely nailed inside of supporting stakes shall be placed along each edge of the pavement and at the beginning and end of the contract, conforming to the lines and grades for the edge of the finished pavement.

(b) They shall have square top edges, square butt joints against stakes and shall not contain enough knots or imperfections to impair their strength.

(c) The stakes shall be sufficient in size and number to support the concrete base and the wearing surface until the work is finished.

(d) All stakes shall be set with a sawed top conforming to the surface of the finished pavement.

(e) Headers shall remain in place and be in good condition upon the completion of the contract.

(f) The expense of the headers and placing them shall be considered as included in the price for the concrete.

CONCRETE FOUNDATION.

Section 17. **(a)** Upon the sub-grade prepared as above specified and while it is thoroughly dampened, there shall be laid a concrete foundation of the thickness, width and form shown on the typical cross-section, composed of "Class C" concrete, mixed and placed as specified under the heading "Concrete," Section 13 of these specifications.

(b) The upper surface of the foundation shall be finished parallel to and one (1) inch below the grade of the finished pavement, by thorough hand tamping until the mortar flushes freely to the surface. It shall then be lightly tamped with a templet made of two inch plank shaped to conform to the curvature of the surface of the finished pavement, and having a length of not less than one half the width of the pavement to give a uniform surface with slight markings made transverse to the roadway.

(c) During the first four days after placing, the pavement shall be kept moist and it shall be protected against traffic until the concrete has thoroughly set, after which sufficient time shall be allowed for the concrete to become thoroughly dry before receiving the wearing surface.

ASPHALT SURFACE.

Section 18. **(a)** When the concrete foundation is thoroughly dry and clean to the Engineer's satisfaction, and before any moisture or foreign matter of any kind has fallen upon the same, there shall be laid the asphaltic wearing surface composed of asphaltic cement, sand and stone dust, the different ingredients being mixed in such proportions that the percentage composition by weight of the wearing surface shall be within the following limits:

(b) 1. Bitumen, soluble in carbon disulphide, between 10 per cent and 12 per cent.

(2) Sand and limestone dust or Portland cement, and other inorganic ingredients, as follows:

Passing a No. 200 sieve, between 10 per cent and 14 per cent.

Passing a No. 80 sieve, and rejected by a No. 200 sieve, between 20 per cent and 28 per cent.

Passing a No. 50 sieve and rejected by a No. 80 sieve, between 20 per cent and 26 per cent.

Passing a No. 30 sieve and rejected by a No. 50 sieve, between 18 per cent and 24 per cent.

Passing a No. 20 sieve and rejected by a No. 30 sieve, between 4 per cent and 8 per cent.

Passing a No. 10 sieve and rejected by a No. 20 sieve, between 2 per cent and 5 per cent.

At least 10 per cent and not more than 18 per cent of the wearing surface mixture shall be limestone dust.

If the composition contains the ingredients aforesaid and within the percentage above fixed, it will be accepted as in compliance with this paragraph.

(c) The asphaltic cement must be prepared from California products. It shall be a mixture of a refined liquid asphalt with a refined solid asphalt, or be an oil asphalt, and must be free from admixture with any residues obtained by the artificial distillation of coal, coal tar or paraffine oil.

(d) The asphaltic cement must be homogeneous, and its consistency at the time of its use must fall within the limits of sixty (60) degrees and eighty (80) degrees penetration by the District of Columbia standard. It must be adhesive and ductile, and also slightly elastic at a temperature of thirty-two (32) degrees F. When twenty (20) grammes are heated in an oven to a temperature of three hundred (300) degrees F. for five (5) consecutive hours in an uncovered cylindrical glass dish three and one half (3½) centimeters high by five and one half (5½) centimeters in diameter, it must not lose more than one (1) per cent in weight, and its penetration must not be reduced, as a result of such heating, more than fifty (50) per cent.

(e) It must, when ready for use, contain at least ninety-nine (99) per cent of bitumen soluble in carbon disulphide. It must be soluble in carbon tetrachloride to the extent of at least ninety-seven and one half (97½) per cent when two hundred (200) cubic centimeters of the solvent are poured on one gramme of the asphaltic cement and the mixture is allowed to stand for eighteen (18) hours at a temperature of twenty-five (25) degrees Centigrade and filtered at twenty-five (25) degrees Centigrade, not less than seventy (70) per cent shall be soluble in eighty-six (86) degree naphtha when one hundred and fifty (150) cubic centimeters of the solvent are poured on one half (½) gramme of the finely divided asphaltic cement and the mixture is allowed to stand for eighteen (18) hours at a temperature of twenty-five (25) degrees Centigrade and filtered at twenty-five (25) degrees Centigrade. It shall not contain more than fifteen (15) per cent of fixed carbon on ignition.

(f) When the asphaltic cement is prepared by mixing a solid oil asphalt with a liquid asphalt, the solid oil asphalt shall be prepared by distilling the crude oil until the asphaltic residuum has a penetration not less than fifty (50) degrees by the District of Columbia standard, and shall not be prepared by mixing or fluxing a more solid asphalt with a liquid or softer asphalt.

(g) The refined liquid asphalt used in softening a solid asphalt must be a stiff residuum of petroleum oil with an asphalt base. It must be free from water and from light oils volatile at less than two hundred and fifty (250) degrees F. When twenty (20) grammes are heated in an oven to a temperature of three hundred (300) degrees F. for five (5) consecutive hours in an uncovered cylindrical glass dish three and one half (3½) centimeters high by five and one half (5½) centimeters in diameter, it must not lose more than three (3) per cent in weight. It must contain not less than ninety-nine (99) per cent of bitumen soluble in carbon disulphide.

(h) The sand for the wearing surface shall be clean, hard-grained and sharp, and shall contain not more than three (3) per cent of loam, clay, or other earthy impurities; it must all pass a No. 10 sieve and not less than seventy-five (75) per cent of its volume shall pass a No. 40 sieve.

(i) The stone dust may be a finely powdered limestone or Portland cement, as the contractor elects, and shall be of such fineness that all of it will pass a No. 50 sieve and at least sixty-six (66) per cent shall pass a No. 200 sieve.

(j) The Contractor shall furnish to the Engineer for test whenever called for and free of charge, samples of all the materials entering into the composition of the pavement, the asphalt and asphaltic cement to be furnished in boxes, and said Engineer shall have access at all times to all branches of the work. All tests shall be open to the Contractor.

(k) The materials above described shall be heated and mixed by either of the two following methods, the contractor to have the option of selecting either method for the work:

1. **First Method.** The sand shall be heated in suitably constructed driers to a temperature between three hundred (300) degrees and three hundred seventy-five (375) degrees F. The hot sand and cold stone dust or other fine material shall then be thoroughly mixed together in a suitable mixer. The necessary quantity of asphaltic cement (previously heated to between two hundred fifty (250) degrees and three hundred (300) degrees F.) shall then be added, and the whole mass shall be mixed in a suitable mixer for at least two minutes.

2. **Second Method.** The sand and stone dust shall be introduced together into a rotary heating and mixing apparatus and heated to a temperature of between two hundred fifty (250) and three hundred twenty-five (325) degrees F. While being mixed, the necessary quantity of asphaltic cement shall then be introduced into said heating and mixing apparatus with the other materials and the whole mass brought to a temperature of between two hundred fifty (250) and three hundred twenty-five (325) degrees F. The cooking and mixing operation shall continue for at least ten minutes at such temperature.

(l) In either of the above instances, the process of mixing shall be continued until every particle of sand and stone dust is thoroughly coated with a thin layer of asphaltic cement. In no case after refined, shall the asphaltic cement be heated above three hundred fifty (350) degrees F.

(m) The material so produced must leave the mixer at a temperature between two hundred fifty (250) degrees and three hundrd twenty-five (325) degrees F. and must be fine grained and capable of producing a compact pavement. Proper sand and sufficient asphaltic cement and stone dust must be used in order to secure this result.

(n) The surface mixture prepared as above, shall be brought to the work in suitable carts or dump wagons, and shall not be colder than two hundred fifty (250) degrees F. nor hotter than three hundred twenty-five (325) degrees F. when it reaches the road.

(o) It shall at once be dumped ahead and uniformly spread back over the concrete foundation with hot shovels and hot rakes to such depth that, after receiving its ultimate compression, the finished asphalt surface will be of a thickness of not less than one (1) inch, and uniform in density throughout.

(p) It shall be immediately compressed by a hot hand roller, and when sufficiently cool, be thoroughly compressed by a roller weighing not more than 125 pounds to the linear inch width of tire, after which a small amount of Portland cement or infusorial earth shall be swept over it. It will then immediately be thoroughly rolled by a roller weighing not less than 210 pounds to the linear inch width of tire. The rolling must be continued for not less than four hours for every 1000 square yards of pavement.

(q) All places that are inaccessible to the roller must be tamped with hot iron tampers.

(r) The resulting pavement must show a close grain, even and smooth surface, true to grade and cross-section and free from all hollows or inequalities. When a straight edge five feet long is laid on the finished surface of the roadway, and parallel with the line of the road, the surface shall in no place vary more than one quarter of an inch from the lower edge of the straight edge.

(s) No traffic shall be allowed on the pavement until it is thoroughly cooled and set.

(t) No asphalt surface shall be laid in rainy weather or when the base is wet from rain or any other cause.

SHOULDERS.

Section 19 (a) Shoulders of the dimensions shown on the plan, or of such dimensions as the Engineer shall specify, shall be built on both sides of the paved way.

(b) If the Engineer shall so direct, any material which he shall select from the excavation of the present road bed shall be stacked in piles, saved for use on the shoulders and used therefor when directed by the Engineer.

(c) The shoulders shall be dressed to conform to the proposed cross-section and shall be rolled with a roller of weight and pattern approved by the Engineer and to his satisfaction. When the roadway is complete the shoulders shall be smooth and hard and shall conform to the proposed cross-section.

(d) The cost of all material used in the shoulders and of all work incidental to their construction will be considered as included in the price paid for excavation and no additional allowance will be made therefor; provided, however, that when material selected for the purpose by the Engineer is stacked and later placed on the shoulders, payment will be made for such material taken from the stacks as if it were excavated from the roadway.

EXTRA WORK.

Section 20(a) The Contractor shall do such extra work and furnish such materials as may be required by the Commission for the proper completion or construction of the whole work herein contemplated; and he shall make no claim for extra work unless it shall have been done in obedience to a written order from the Engineer. All bills for extra work done in any month shall be filed in writing with the Engineer before the fifteenth of the following month; and failing to file such claims within the time required, all rights for pay for such extra work shall be forfeited. The Contractor shall receive for such extra work the actual cost of all materials furnished by him as shown by his paid vouchers. For such labor and teams as are necessary he shall receive the current prices in the locality, which shall have been previously agreed to in writing by the Engineer and by the Contractor, plus fifteen (15) per cent.

Form C 8—33

MAINTAINING TRAVEL

Section 21 (a) The contractor shall provide for the maintenance of the public travel alongside of or around any section of the highway which may be obstructed by reason of his work. Such travel as cannot be satisfactorily diverted to parallel or adjacent highways must be provided for by the contractor within the highway.

(b) The cost of any necessary temporary roadways for the public shall be borne by the contractor and he shall be responsible for any damage resulting from their use.

FILED
AUG 22 1942
DEPARTMENT of ENGINEERING
Earle A. Reeves
Secretary

BIDDER'S BOND TO ACCOMPANY PROPOSAL.

FOR CONSTRUCTING A PORTION OF A STATE HIGHWAY

in the county of San Mateo

between South San Francisco

and Burlingame

Division IV; *Route* 2; *Section* A

KNOW ALL MEN BY THESE PRESENTS,

That we F.R. RITCHIE & CO.

of San Francisco, California,

as principal, and MASSACHUSETTS BONDING AND INSURANCE COMPANY

a corporation of the Commonwealth of Massachusetts

*as suret*y, *are held and firmly bound unto the State of California, in the sum of*

TEN THOUSAND and no/100 - - - - - - - - - - - - - - - - - -

dollars ($10,000.00), *to be paid to the said State or its certain attorney, its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.*

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if the certain proposal of the above bounden

F.R. RITCHIE & CO.

to construct a portion of a state highway in the county of San Mateo

between South San Francisco

and Burlingame

Division IV; *Route* 2; *Section* A;

dated _____, *19*____, *is accepted by the California Highway Commission (Department of Engineering of the State of California), and if the above bounden* F.R.RITCHIE & CO.

heirs, executors, administrators, successors and assigns, shall duly enter into and execute a contract for constructing said highway with the State of California in the form of the contract annexed to said proposal, and shall execute and deliver the two bonds described in the notice to contractors annexed to said proposal within ten days (not including Sunday) from the date of the mailing of a notice to the above bounden F.R. RITCHIE & CO. *by and from the said California Highway Commission (said Department of Engineering) that said contract is ready for execution, and shall in all things stand to and abide by and well and truly keep and perform the covenants, conditions and agreements in the said contract and any alteration thereof made as therein provided on his or their part to be kept and performed, at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and according to the said proposal and the plans and specifications included in said contract, and shall indemnify and save harmless the said State of California, its officers and agents as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue.*

IN WITNESS WHEREOF, *We hereunto set our hands and seals on this* 22nd *day of* JUNE, *in the year nineteen hundred and* twelve.

_____ *(Seal.)*

_____ *(Seal.)*

MASSACHUSETTS BONDING & INSURANCE COMPANY *(Seal.)*

By: John A. Roher Jr. *(Seal.)*

And: J. R. Palmer *(Seal.)*

Attorneys in fact.

STATE OF CALIFORNIA,

COUNTY OF _____, } SS.

_____

_____

*the sureties named in the foregoing and annexed bond, being duly sworn, each for himself, doth depose and say: That he is a resident and freeholder within the State of California, and is worth the sum of*_____

_____ *dollars, specified in said bond, over and above all his debts and liabilities, exclusive of property exempt from execution.*

_____

_____

Subscribed and sworn to before me this _____ *day of* _____, *A. D. 191*____.

_____

*Notary Public in and for the County of*_____,

State of California.

J 3005 5-12

STATE OF CALIFORNIA,
City and County of San Francisco, } *SS.*

On this 22nd *day of* JUNE *A. D., 191*2, *before me,* N. E. G. Smith, *a Notary Public in and for the City and County of San-Francisco, personally appeared* JOHN H. ROBERTSON, *Attorney in Fact and* S. M. PALMER, *Attorney in Fact of the* **Massachusetts Bonding and Insurance Company** *to me personally known to be the individuals and officers described in and who executed the within instrument, and they each acknowledged the execution of the same, and being by me duly sworn, severally and each for himself deposeth and saith, that they are the said officers of the Company aforesaid, and that the seal affixed to the within instrument is the corporate seal of said Company, and that the said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority and direction of said corporation.*

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at my office in the City and County of San Francisco the day and year first above written.

N. E. G. Smith

_____