

LIVE OAK

CALIFORNIA

CONTRACT DOCUMENTS

FOR

**PENNINGTON ROAD EAST
OVERLAY PROJECT**

OCTOBER, 2023

Prepared by:

 **RAR**
ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811
TELEPHONE 530-895-1422 • FAX 530-895-1409



SET NO. _____

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LIVE OAK

CALIFORNIA

NOTICE TO CONTRACTORS

NTC-1

CITY OF LIVE OAK

NOTICE INVITING BIDS: Sealed bids will be received at City Hall, City of Live Oak, 9955 Live Oak Blvd., Live Oak, California, 95953 until 11:00 a.m., Tuesday, November 21, 2023. At that time, all bids will be publicly opened, examined and declared for construction of:

**PENNINGTON ROAD EAST
OVERLAY PROJECT**

GENERAL WORK DESCRIPTION: The work to be done under this Contract consists of asphalt pavement grinding, roadway excavation, placement of aggregate base and HMA paving, construction of curb, gutter and sidewalk, curb ramps, residential driveways, storm drainage improvements, water system improvements, pavement markings, roadside signs and all necessary appurtenances, complete.

The Engineer's Estimate for this project is approximately \$ 400,000.00

Work shall be completed within 45 working days after receipt of a Notice to Proceed from the Owner.

The contractor is to carefully examine the site of the proposed work, and is to make his or her own determination of the scope of the work to be performed, including but not limited to the soil conditions and/or groundwater conditions to be encountered in performing the work, and he or she is to carefully examine these Contract Documents.

BID SUBMITTAL REQUIREMENTS: No bid will be accepted unless it is made on a bid form furnished by the City of Live Oak. **To ensure consideration, the bid must be enclosed in a sealed envelope, clearly marked Bid which also bears the name of the project and the date and time set for opening of bids.** Each bid must be accompanied by cash, certified or cashier's check, or bidder's bond made payable to the City of Live Oak for an amount equal to ten percent (10%) of the amount bid, such guaranty to be forfeited should the bidder to whom the Contract is awarded fail to execute the Contract.

No Bid will be accepted from a contractor who is not currently licensed in accordance with the provisions of Chapter 9, Division III of the Business and Professions Code. Subcontractors shall also be licensed as required by said code.

The contractor shall possess either a Class A license or a combination of Class C licenses which constitutes a majority of the work at the time this contract is awarded.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code Section 1771.1(a)].

NOTICE TO CONTRACTORS**CITY OF LIVE OAK**

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

PREVAILING WAGES: Pursuant to Section 1770, and following, of the California Labor Code, the successful bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages are on file at the office of the City Clerk, which copies will be made available to any interested party on request, and are available at the California Department of Industrial Relations' Internet web site at <http://www.dir.ca.gov/DLSR/PWD>. Future effective general prevailing wage rates, which have been predetermined and are on file with the California Department of Industrial Relations are referenced but not printed in the general prevailing wage rates. The successful bidder shall post a copy of the applicable wage rates on the job site during the construction period.

APPRENTICESHIP STANDARDS: In accordance with the provisions of Part 7, Chapter 1, Article 2, Section 1777.5 of the Labor Code of the State of California, the prime contractor shall be responsible for fully complying with the provisions of this Section, as well as any regulations adopted by the Director of Industrial Relations, for all apprenticeable crafts or trades, and shall also assure compliance by his or her sub-contractors with respect to such apprenticeable crafts or trades.

INSURANCE AND BONDS REQUIRED: The successful bidder to whom the Contract is awarded will be required to furnish appropriate insurance certificates as required by Section D.1 of the General Conditions and the Special Conditions. He or she shall also furnish a Payment Bond in an amount equal to the total Contract amount and a Faithful Performance Bond in an amount equal to the total Contract amount, with a corporate surety approved by the City of Live Oak.

PAYMENT OF RETENTION AND SUBSTITUTION OF SECURITIES: Five percent will be withheld from each progress payment made to the Contractor for work performed and will be held until completion of the work, its acceptance and the expiration of the period provided by law for filing of liens by laborers or material men. In accordance with the provisions of Public Contract Code Section 22300, securities may be substituted for any monies which the City may withhold pursuant to the terms of the Contract to insure performance.

BIDDER'S INFORMATION: Contract Documents, including Plans and Specifications, are available for inspection at the Public Works Department located in City Hall, City of Live Oak, 9955 Live Oak Blvd., Live Oak, California; Valley Contractors Exchange at 951 E. 8th Street, Chico, California; and Shasta Builders Exchange at 2990 Innsbruck Drive, Redding, California. Copies are available for purchase at the Office of the City Engineer, Rolls, Anderson & Rolls Civil Engineers, 115 Yellowstone Drive, Chico, California, 95973 for a **NON-REFUNDABLE PAYMENT** of \$20.00 per set if picked up at the Office of the City Engineer or \$25.00 per set if mailed. Please contact Suzanne Markey at (530) 895-1422 or address requests to her attention.


NOTICE TO CONTRACTORS

NTC-3

CITY OF LIVE OAK

BID AWARD: The Contract, if awarded, will be awarded within 30 days after the opening of bids, to the lowest responsible bidder as determined by the City of Live Oak. The City reserves the right, in its sole discretion, to reject any and all bids for any reason whatsoever, or to waive minor irregularities in any bid, and to accept any bid.

Dated: 10-24-2023

By 
Aaron D. Palmer
City Manager
City of Live Oak

Publish: 10/27/2023
11/07/2023

NTC-4

NOTICE TO CONTRACTORS

CITY OF LIVE OAK



A. INTRODUCTION

Each bid shall be in accordance with the Contract Documents prepared by *Rolls, Anderson & Rolls*, 115 Yellowstone Drive, Chico, California, 95973. Contract Documents are available as specified in the Notice to Contractors.

B. DEFINITION OF TERMS

- 1. CONTRACT DOCUMENTS:** The Contract Documents consist of the Notice to Contractors, Instructions to Bidders, Bid, Contract, General Conditions, Special Conditions, Technical Specifications, Plans, and any Addenda.
- 2. CONTRACT:** The Contract is the written agreement covering the performance of the work and the furnishing of labor, materials, tools, and equipment in the construction of the work. It includes supplemental agreements amending or extending the work contemplated and which may be required to complete the work agreements covering alterations, amendments or extensions to the Contract and includes Contract Change Orders.
- 3. OWNER, CONTRACTOR AND ENGINEER:** The Owner, the Contractor and the Engineer are those mentioned as such in the Special Conditions. They are treated throughout the Contract Documents as if each were of the singular number and the masculine gender.
- 4. BIDDER:** Any individual, firm, partnership, or corporation submitting a bid for the work contemplated, acting directly or through a duly authorized representative.
- 5. BID:** The offer of a Bidder for the work when made out and submitted on the prescribed bid form, properly signed and guaranteed.
- 6. BID GUARANTEE:** The cash, cashier's check, certified check or Bidder's Bond accompanying the bid submitted by the Bidder, as a guarantee that the Bidder will enter into a Contract with the Owner for the performance of the work if the Contract is awarded to him.
- 7. EFFECTIVE DATE OF THE CONTRACT:** The date on which the governing body or an authorized representative of the Owner executes the Contract.
- 8. DATE OF EXECUTION OF THE CONTRACT:** The date on which the Contract is signed by the Owner's authorized representative.
- 9. DAYS:** Unless otherwise specifically stated, the term "days" will be understood to mean working days.
- 10. WORK:** The term "work" means all the work specified, indicated, shown or contemplated in the Contract Documents, including all alterations, amendments or extensions thereto made by Contract Change Order or other written orders of the Engineer.
- 11. SPECIFICATIONS:** The term "specifications" refers to the terms, provisions and requirements contained herein and referred to as General Conditions, Special Conditions and

INSTRUCTIONS TO BIDDERS

Technical Specifications. Where Standard Specifications such as those of ASTM, AASHTO, etc., have been referred to, the applicable portions of such Standard Specifications shall become a part of these Contract Documents.

12. PLANS: The term "Plans" refers to the official Plans, profiles, cross sections, elevations, details and other working drawings and supplementary drawings, or reproductions thereof, signed by the Engineer, which show the location, character, dimensions, and details of the work to be performed. Plans may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents regardless of the method of binding.

C. PREPARATION AND SUBMISSION OF BIDS

Bids must be submitted on the forms bound in the Contract Documents and must be "wet signed" by the Bidder or his authorized representative. Any corrections to the entries made on the bid forms must be initialed by the person signing the bid.

Bidders must bid on all items appearing on the bid form, unless specific directions allow for partial bids. Failure to bid all items may disqualify the bid. If bids on all items are not required, Bidders shall insert the words "No Bid" where appropriate. Alternate bids will not be considered unless specifically called for in the bid.

Telegraphic bids or facsimile bids will not be considered. Modifications to bids already submitted will be allowed if received in writing, by facsimile or by telegram prior to the time fixed in the Notice to Contractors for opening of bids. Modifications shall be submitted as such, and shall not reveal the total amount of either the original or revised bid.

To insure consideration, the bid should be enclosed in a sealed envelope, clearly marked **Bid** which also bears the name of the project and the date and time set for opening bids. The sealed envelope containing the bid should be filed at the place and before the time set for opening of bids. Bids received after the time indicated will be returned unopened.

D. WITHDRAWAL OF BIDS

Any bidder may withdraw his bid, either personally or by facsimile, telegraphic or written request at any time prior to the scheduled closing time for receipt of bids. No bidder may withdraw his bid for a period of 30 days after the date set for opening. Negligence on the part of the bidder in preparing his bid shall not constitute a right to withdraw his bid subsequent to the bid opening.

E. BID GUARANTEE

Bids shall be accompanied by cash, certified check, cashier's check or "wet signed" Bidder's Bond made payable to the Owner. Facsimile copies of checks or executed Bidder's Bonds will not be accepted. The Bid Guarantee must be enclosed in the same envelope with the bid. The amount of the Bid Guarantee shall not be less than 10 percent of the total amount of the bid.

F. ADDENDA AND EXPLANATIONS TO BIDDERS

Any request for explanation or interpretation of the Contract Documents must be made in writing at least 7 days before the time set for opening of bids. Any explanation or interpretation will be made in the form of Addenda to the Contract Documents and shall be furnished to all Bidders. Bidders shall submit signed copies of all Addenda with their bids. Oral explanations and interpretations will not be binding.

G. DISCREPANCIES

In case of discrepancies between unit prices and totals, unit prices will prevail. In case of discrepancy between words and figures, words will prevail.

H. ACCEPTANCE OR REJECTION OF BIDS

The Owner reserves the right to reject any or all bids and to waive any informality in any bid.

The award of Contract, if made, will be to the lowest responsible Bidder whose bid complies with the requirements of the Contract Documents. The award, if made, will be made within 30 days after the opening of bids. If the lowest responsible Bidder fails to sign and return the Contract with acceptable bonds and certificates of insurance, the Owner may award the Contract to the next lowest responsible Bidder.

I. CONTRACT BONDS

The successful Bidder shall furnish a Performance Bond in the amount of 100 percent of the total Contract amount and a Payment Bond in the amount of 100 percent of the total Contract amount.

J. EXECUTION OF CONTRACT

The effective date of the Contract shall be the date on which the governing body or an authorized representative of the Owner awards the Contract. The Bidder whose bid is accepted, and to whom the Contract is awarded, shall sign and return the Contract with acceptable bonds and certificates of insurance within 14 calendar days after receiving notice that the Contract has been awarded to him. Failure to do so shall be just cause for annulment of the award and for forfeiture of the bid Guarantee.

Within 7 days after receiving the signed Contract with acceptable bonds, and evidence of satisfactory insurance, from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

K. RETURN OF BID GUARANTEES

Within 15 days after the award of the Contract, the Owner will return the Bid Guarantees, other than Bidder's Bonds, to all Bidders whose bids are not to be further considered in awarding the Contract. Retained Bid Guarantees will be held until the Contract has been finally executed, after which all Bid Guarantees, other than Bidder's Bonds and any guarantees which have been forfeited, will be returned to the respective Bidders whose bids they accompanied.

TO: CITY OF LIVE OAK

The undersigned declares that he has carefully examined the location of the proposed work and that he has examined the Contract Documents entitled:

**CITY OF LIVE OAK
CONTRACT DOCUMENTS
FOR
PENNINGTON ROAD EAST OVERLAY PROJECT**

He proposes to furnish all labor, materials, tools, and equipment and to perform all the work necessary to construct the improvements complete in place in accordance with the Contract Documents, and that he will take in full payment therefor the following prices, to wit:

Item No.	Description	Approx. Quantity	Unit Price	Amount
1.	Clearing, grubbing and demolition, complete	Lump Sum	\$ _____	\$ _____
2.	Roadway excavation, complete	Lump Sum	\$ _____	\$ _____
3.	Conform Grinding, complete	1060 SY	\$ _____	\$ _____
4.	Pavement Grinding, complete	1450 SY	\$ _____	\$ _____
5.	Hot Mix Asphalt (HMA), complete in place	950 TON	\$ _____	\$ _____
6.	Aggregate Base, complete in place	360 TON	\$ _____	\$ _____
7.	Construct City Std. 202 5" barrier curb and gutter, complete in place	437 LF	\$ _____	\$ _____
8.	Construct Modified City Std. 201 3" P.C.C. Curb, Type "A", complete in place	283 SF	\$ _____	\$ _____
9.	Construct City Std. 205 residential driveway, complete in place	369 SF	\$ _____	\$ _____
10.	Construct City Std. 207 curb ramp, complete in place	5 EA	\$ _____	\$ _____
11.	Construct City Std. 204 sidewalk, complete in place	2200 SF	\$ _____	\$ _____
12.	Connect to existing Storm Drain Manhole, complete in place	1 EA	\$ _____	\$ _____
13.	Furnish and install 15" Dia. Reinforced Concrete Pipe, complete in place	30 LF	\$ _____	\$ _____
14.	Adjust existing manhole frame and cover to finish grade, complete in place	9 EA	\$ _____	\$ _____
15.	Adjust existing valve (water, gas, SSCO) frame and cover to finish grade, complete in place	15 EA	\$ _____	\$ _____

BID-2

BID

Item No.	Description	Approx. Quantity	Unit Price	Amount
16.	Remove and dispose of existing fire hydrant service line and tee, remove and salvage existing water valve, furnish and install 7 LF ± 6" Dia. Ductile Iron water main, complete	Lump Sum	\$ _____	\$ _____
17.	Furnish and install City of Live Oak Std. 301 Residential Fire Hydrant, complete in place	1 EA	\$ _____	\$ _____
18.	Furnish and install 4" thermoplastic traffic stripe, complete in place	2224 LF	\$ _____	\$ _____
19.	Furnish and install 8" thermoplastic traffic stripe, complete in place	66 LF	\$ _____	\$ _____
20.	Furnish and install thermoplastic pavement marking, complete in place	1038 SF	\$ _____	\$ _____
21.	Furnish and Install two-way retroreflective pavement marker	118 EA	\$ _____	\$ _____
22.	Furnish, install and/or relocate roadside signs and sign posts, complete in place	14 EA	\$ _____	\$ _____
23.	Traffic control system, complete	Lump Sum	\$ _____	\$ _____
24.	Water Pollution Control, complete	Lump Sum	\$ _____	\$ _____
TOTAL BID AMOUNT			\$ _____	_____

NAME OF BIDDER _____

BUSINESS P.O. BOX _____

BUSINESS STREET ADDRESS _____
(Please provide even if P.O. Box used)

CITY, STATE, ZIP CODE _____

TELEPHONE NO. _____

FAX NO. _____

CONTRACTOR LICENSE NO. _____

CERTIFICATION

C-1

[LABOR CODE SECTION 1861]

STATE OF CALIFORNIA)
)
COUNTY OF _____) ss

I, the undersigned, do hereby certify:

That I am aware of the provision of Section 3700 of the Labor Code of the State of California, which requires every employer to be insured against liability for Workers Compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provision before commencing the performance of the work of this Contract.

Executed at _____

On _____

I certify under penalty of perjury that the foregoing is true and correct.

Contractor-Employer

C-2

CERTIFICATION

[LABOR CODE SECTION 1861]



Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ___ , has not ___ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Section 10162 Questionnaire

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is yes, explain the circumstances in the following space.

Section 10232 Statement

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PC-4

PUBLIC CONTRACT CODE



NONCOLLUSION AFFIDAVIT

NA-1

Noncollusion Affidavit

(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

To the CITY / COUNTY of _____ *DEPARTMENT OF PUBLIC
WORKS.*

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Noncollusion Affidavit is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

NA-2

NONCOLLUSION AFFIDAVIT



BIDDER'S SIGNATURE

SIG-1

Accompanying this Bid is _____, (cash, cashier's check, certified check or Bidder's Bond) in the amount equal to at least 10 percent of the total amount of the Bid.

The names of all persons interested in the foregoing bid as principals are as follows:

IMPORTANT NOTICE

If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a copartnership, state true name of firm, also names of all individual copartners composing firm; if bidder or other interested person is an individual, state first and last names in full.

Licensed in conformance with an act providing for the registration of Contractors,

License No. _____ Classification(s) _____

ADDENDA - This Bid is submitted with respect to the changes to the contract documents included in addenda number/s _____

(Fill in addenda numbers if addenda have been received and insert, in this Bid, any Engineer's Estimate sheets that were received as part of the addenda.)

By my signature on this Bid I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232 and 10285.1 are true and correct and that the bidder has complied with the requirements of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5, Title 2 of the California Administrative Code). By my signature on this Proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106; and the Title 49 Code of Federal Regulations, Part 29 Debarment and Suspension Certification are true and correct.

Date: _____



Signature and Title of Bidder

Business Address _____

Place of Business _____

Place of Residence _____

SIG-2

BIDDER'S SIGNATURE



BIDDER'S BOND

BB-1

KNOW ALL MEN BY THESE PRESENTS, THAT WE, THE UNDERSIGNED

_____ as Principal;
and _____ as
Surety,

are hereby held and firmly bound unto City of Live Oak, California hereinafter called the
Owner, in the sum of _____ dollars
(\$ _____), which sum is equal to at least 10 percent of the total amount of
the Proposal, payment of which sum, well and truly to be made, we hereby, jointly and severally
bind ourselves, our heirs, executors, administrators, successors, and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the
Owner a certain Bid, attached hereto and hereby made a part thereof, to enter into a Contract in
writing, for the construction of:

**PENNINGTON ROAD EAST
OVERLAY PROJECT**

THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall sign and deliver a Contract, in the Form of Contract attached hereto and shall execute and deliver Performance and Payment Bonds in the forms attached hereto (all completed in accordance with said Bid), and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then, this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all default of the Principal hereunder shall be the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid, and said Surety does hereby waive notice of any such extension.

BIDDER'S BOND

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative pursuant to authority of its governing body.

ATTEST:

	_____	Principal
		By _____
_____	(Principal Secretary)	
_____	(Witness as to Principal)	_____
		(Address)
_____	(Address)	_____

ATTEST:

	_____	Surety
		By _____
_____	(Surety Secretary)	Attorney-in-Fact
_____	(Witness as to Surety)	_____
		(Address)
_____		_____

The rate of premium on this bond is _____ per thousand.

Total amount of premium charged is \$ _____.

FORM OF CONTRACT

FC-1

THIS AGREEMENT, made and entered into on the date below written, by and between, **CITY OF LIVE OAK, CALIFORNIA, A MUNICIPAL CORPORATION**, 9955 Live Oak Blvd., Live Oak, California, 95953, hereinafter called the **OWNER**, and _____, hereinafter called the **CONTRACTOR**.

WITNESSETH, that, for the considerations hereinafter mentioned, the Owner and Contractor agree as follows:

ARTICLE I. The Contractor agrees to furnish all labor, materials, tools, and equipment and to perform all the work required to construct and complete in a good and workmanlike manner, and in strict accordance with the Contract Documents entitled:

**CITY OF LIVE OAK
CONTRACT DOCUMENTS
FOR
PENNINGTON ROAD EAST
OVERLAY PROJECT**

The Contract Documents have been prepared by *Rolls, Anderson & Rolls*, 115 Yellowstone Drive, Chico, California 95973, hereinafter called the Engineer, and are hereby incorporated in and made a part of this Contract.

ARTICLE II. The Owner agrees to pay the Contractor for the performance of the Contract, subject to additions and deductions provided therein, the following prices, and the Contractor agrees to receive and accept said following prices as full compensation for furnishing all materials and for doing all the work contemplated and embraced in this agreement, and for all loss or damage arising out of the nature of the aforesaid work or from the action of the elements and from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the Owner, and for all risks of every description connected with the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work, and for well and faithfully completing the work and the whole thereof in the manner and according to the Contract Documents and the requirements of the Engineer under it, to wit:

As shown on the Bid attached hereto and incorporated herein.

ARTICLE III. The Owner shall make payments on the account of the Contractor as specified in Article F of the General Conditions.

ARTICLE IV. The Contractor shall commence work within 15 days and shall diligently prosecute the same to completion within 45 working days after receipt of a Notice to Proceed from the Owner.

ARTICLE V. The Contractor shall guarantee all of his work against defective material or faulty workmanship for a period of one year after the date of acceptance of the work by the Owner.

The Contractor shall repair or replace to the satisfaction of the Engineer any or all such work that may prove defective in workmanship or materials within that period, ordinary wear and tear and unusual abuse or neglect excepted, together with any other work which may be damaged or displaced in so doing.

In the event of failure to comply with the above mentioned conditions within a reasonable time after being notified in writing, the Owner is authorized to have the defects repaired and made good at the expense of the Contractor who will pay the cost and charges therefore immediately upon demand.

The signing of the Contract by the Contractor shall constitute execution of the above guarantees.

ARTICLE VI. The Contractor specifically obligates himself and hereby agrees to protect, hold free and harmless, defend and indemnify the Owner, the Engineer and his consultants, and each of their officers, employees and agents, from any and all liability, penalties, costs, losses, damages, expenses, causes of actions, claims or judgments, including attorney's fees, which arise out of or are in any way connected with the Contractor's performance of his work under this Contract. To the extent legally permissible, this indemnity and hold harmless agreement by the Contractor shall apply to any acts or omissions, whether active or passive, on the part of the Contractor or his agents, employees, representatives, or subcontractors, or his subcontractor's agents, employees and representatives, resulting in liability irrespective of whether or not any acts or omissions of the parties to be indemnified hereunder may have also been a contributing factor to the liability.

As a further precaution toward this end, the Contractor shall procure and maintain, in full force and effect during the performance of the work contemplated hereunder, insurance in his favor and also in favor of the Owner, with an insurance carrier approved by the Owner, as specified in Article D of the General Conditions and in the Special Conditions.

ARTICLE VII. Contractor acknowledges that State Labor Law requires the payment of prevailing wages and the maintenance of certain payroll records and other requirements as specified in Article E of the General Conditions and the Labor Code. Contractor agrees that these requirements shall be incorporated into all of his subcontracts.

ARTICLE VIII. Neither party of the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any monies due, or to become due to him hereunder, nor utilize any subcontractors, other than those set forth in the List of Subcontractors, without the previous written consent of the Owner.

FORM OF CONTRACT

FC-3

ARTICLE IX. Contractor is an independent contractor in the performance of this contract and is not an employee or agent of the Owner. The Owner has no direct obligation to any officers, agents, employees or subcontractors of the Contractor and such individuals shall not be entitled to claim direct payment of salaries nor seek employment benefits from the Owner.

ARTICLE X. Contractor warrants that he is duly and properly licensed to perform and provide the services contemplated by this Contract. Contractor shall possess all required licenses, including a local business license and shall require subcontractors and suppliers to be similarly licensed with regard to performance under this Contract.

ARTICLE XI. The Contractor shall maintain records relating to his performance of this Contract which shall be available for audit and/or inspection for a period of four (4) years after Contractor completes performance of the Contract or the Contract is otherwise terminated.

ARTICLE XII. Any Notices given pursuant to this Contract must be in writing and given either by personal delivery or by United States Mail, postage prepaid, addressed as follows:

OWNER:

City of Live Oak
Attn.: Aaron D. Palmer
City Manager
9955 Live Oak Blvd.
Live Oak, CA 95953

CONTRACTOR:

ARTICLE XIII. The Owner may terminate this Contract, without cause, upon giving of five (5) days written notice to Contractor. In the event of termination without cause, Contractor shall be compensated for services performed and materials furnished on an equitable basis through the date of termination.

ARTICLE XIV. California Law governs the interpretation and enforcement of this Contract.

ARTICLE XV. This Contract embodies the entire agreement between the parties. There are no oral agreements. No amendment to this Contract shall be valid unless in writing, executed by both parties to this Contract. The language of this Contract governs against any conflicting language or terms contained in any attachment, exhibit or scope of work.

FORM OF CONTRACT

ARTICLE XVI. Neither the acceptance of work nor payment for that work shall constitute a waiver of any provisions of this Contract. A waiver of any breach shall not constitute a waiver of any other provision or subsequent breach.

IN WITNESS WHEREOF, the parties to these presents have hereunto set their hands on the date below written.

OWNER

Date

Aaron D. Palmer
City Manager
City of Live Oak

(City Seal)

Attest:

City Clerk, City of Live Oak

CONTRACTOR

Date

name
title
company

Approved as to Form:

Nicole Delerio-Rosser, City Attorney
City of Live Oak

Whereas, The City Council of the City of _____, State of California, and _____ (hereinafter designated as "principal") have entered into an agreement whereby principal agrees to install and complete certain designated public improvements, which said agreement, dated _____, 20____, and identified as project _____, is hereby referred to and made a part hereof; and

Whereas, Said principal is required under the terms of said agreement to furnish a bond for the faithful performance of said agreement.

Now, therefore, we, the principal and _____, as surety, are held and firmly bound unto the City of _____ (hereinafter called "City"), in the penal sum of _____ dollars (\$_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, successors, executors and administrators, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the above bounded principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said agreement 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 shall indemnify and save harmless _____, its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the City in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

The surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

The surety's obligations to the City arise immediately upon the default of the principal, without demand or notice.

In the event the principal defaults in the performance of its obligations, the surety may elect, either directly or through appropriate contractors to perform in the place of the principal. If the surety elects to proceed in this fashion, it shall provide written notice of such election to the City within thirty (30) days after surety becomes aware of the principal's default. If the surety elects to complete the obligations of the principal (as opposed to paying money damages to the City occasioned by such breach) the surety shall cause the obligations of the principal to be performed as soon as is reasonably possible, but in no event later than nine (9) months following knowledge of the breach by the principal. In the event the surety elects to perform the principal's obligations, the City shall be entitled to compel the surety, by way of specific performance, to perform such obligations.

If the surety does not elect to perform the principals' obligations, the surety shall deposit with the City a sum equal to the cost of the uncompleted portion of the work which comprises the principal's obligation. The City's city engineer shall determine the estimated cost of the uncompleted portion of the work and the surety shall make such deposit with the City within five (5) days of receipt of the city engineer's estimate. The City shall not be required to expend any of its own funds to complete the work nor to incur "out-of-pocket" damages inasmuch as the City's damages are measured by the value of its unfulfilled right, namely the cost of completing the obligations of the principal by installing the bargained-for improvements. Upon deposit of the estimated cost of completion with the City, the City may proceed to bid the remainder of the work as a public project pursuant to the Public Contracts Code and the surety shall be obligated to continue to deposit such additional sums as may be necessary from time-to-time until the improvements are complete and accepted by the City or until the surety has exhausted the penal sum of the bond. Should the surety deposit more funds than are necessary to satisfy the principal's obligation, then the City shall refund any balance remaining upon final acceptance of the improvements. No interest shall be paid on any deposits made with the City.

Underwriting assumptions and cost estimates of the Surety shall not have any bearing, whatsoever, on the Surety's liability under this bond. By way of example, if, when making underwriting decisions regarding issuing this bond, a cost estimate was prepared regarding the principal's obligations to the City, the fact that an item was omitted from the cost estimate (which item was an obligation of the principal to the City), shall in no way defeat or diminish the Surety's obligation to the City with respect to this omitted item. By way of further example, if the

underwriting decision to issue this bond included a cost estimate of items and a particular item was estimated at a cost significantly less than the amount actually required to perform such item, this fact shall in no way defeat or diminish the Surety's obligation to the City. Namely, the Surety shall be obligated, to the full amount of the penal sum of the bond, with respect to all matters which are the principal's obligation to the City, whether such items are actually included in any cost estimate (or if so included, are estimated at a cost far less than the actual cost to perform such items). Likewise, the adequacy and amount of any premium (and whether or not such premium was sufficient for the risk assumed by Surety) shall have no bearing on Surety's absolute and unconditional obligation to the City upon the principal's default of its obligations under this bond.

In witness whereof, this instrument has been duly executed by the principal and surety above named, on _____, 20____.

ATTEST:

	_____	Principal
_____	(Principal Secretary)	By _____
_____	(Witness as to Principal)	_____
_____	(Address)	(Address)
_____	(Address)	_____

ATTEST:

	_____	Surety
_____	(Surety Secretary)	By _____
_____	(Witness as to Surety)	Attorney-in-Fact
_____	(Address)	(Address)
_____		_____

NOTE: If Contractor is a Partnership, all partners should execute the bond.



PAYMENT BOND

PB-1

Whereas, The City Council of the City of _____, State of California, and _____ (hereinafter designated as "principal") have entered into an agreement whereby principal agrees to install and complete certain designated public improvements, which said agreement, dated _____, 20____, and identified as project _____, is hereby referred to and made a part hereof; and

Whereas, Under the terms of the agreement, the principal is required before entering upon the performance of the work, to file a good and sufficient payment bond with the City of _____ to secure the claims to which reference is made in Title 3 (commencing with Section 9000) of Part 6 of Division 4 of the Civil Code.

Now, therefore, the principal and the undersigned as corporate surety, are held firmly bound unto the City of _____ and all contractors, subcontractors, laborers, material suppliers, and other persons employed in the performance of the agreement and referred to in Title 3 (commencing with Section 9000) of Part 6 of Division 4 of the Civil Code in the sum of _____ dollars (\$_____), for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to this work or labor, that the surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by county (or city) in successfully enforcing this obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under Title 3 (commencing with Section 9000) of Part 6 of Division 4 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

The surety hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the agreement or the specifications accompanying the same shall in any

PAYMENT BOND

manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

In witness whereof, this instrument has been duly executed by the principal and surety above named, on _____, 20____.

ATTEST:

_____	_____
(Principal Secretary)	Principal
_____	By _____
(Witness as to Principal)	_____
_____	(Address)
(Address)	_____
_____	_____

ATTEST:

_____	_____
(Surety Secretary)	Surety
_____	By _____
(Witness as to Surety)	Attorney-in-Fact
_____	(Address)
_____	_____

NOTE: If Contractor is a Partnership, all partners should execute the bond.

GENERAL CONDITIONS

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A. SCOPE OF THE WORK

A.1 INTENT: The intent of the Plans and Specifications is to prescribe the details for the construction and completion of the work which the Contractor undertakes to perform in accordance with the terms of the Contract Documents. Where the Plans or Specifications describe portions of the work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and do all the work involved in executing the Contract in a satisfactory and workmanlike manner.

A.2 CHANGES IN THE WORK: The Owner reserves the right to make changes in the work, including alterations, additions, deductions and omissions, and to require extra work, all as may be deemed necessary by the Engineer. All such changes will be done under Contract Change Order which shall set forth the work to be done or the changes to be made, the value of the work or the method by which it will be determined and the change, if any, in the time of completion of the work.

The value of any such extra work or change shall be determined in one or more of the following ways:

- (a) By unit prices named in the Contract or subsequently agreed upon.
- (b) By estimate and acceptance in an agreed upon lump sum.
- (c) By Force Account as provided for in Article F.4.

If none of the above methods is agreed on, or if the work is to be done by Force Account, the Contractor shall keep and present in the form prescribed in Article F.5 a correct account of the net cost of the labor and materials actually incorporated in the work.

Upon receipt of a Contract Change Order, the Contractor shall proceed with the ordered work. If ordered in writing by the Engineer, the Contractor shall proceed with the work so ordered prior to actual receipt of a Contract Change Order. A Contract Change Order executed by the Contractor and approved by the Engineer is an executed Contract Change Order as that term is used in Articles A.3 through A.5.

A Contract Change Order may be issued to the Contractor at any time. Should the Contractor disagree with any terms or conditions set forth in a Contract Change Order which he has not executed, he shall submit a written protest to the Engineer within 15 days after the receipt of such Contract Change Order. The protest shall state the points of disagreement, Specification references, and, if possible, the quantities and cost involved. If a written protest is not submitted, payment will be made as set forth in the Contract Change Order and such payment shall constitute full compensation for all work included therein or required thereby. Such unprotested Contract Change Orders will be considered as executed Contract Change Orders as that term is used in Articles A.3 through A.5.

Where the protest concerning a Contract Change Order relates to compensation, the compensation payable for all work specified or required by said Contract Change Order to which

such protest relates will be determined as provided in Articles A.3 through A.5. The Contractor shall keep full and complete records of the cost of such work and shall permit the Engineer to have access thereto as may be necessary to assist in the determination of the compensation payable for such work.

Where the protest concerning a Contract Change Order relates to the adjustment of time of completion of the work, the time to be allowed therefore will be determined as provided in Article B.3.

A.3 INCREASED OR DECREASED QUANTITIES: Increases or decreases in the quantity of a Contract item of work will be determined by comparing the total pay quantity of such item of work with the quantity shown in the Bid for the same item of work.

If the total pay quantity of any item of work required under the Contract varies from the Bid quantity therefore by 25 percent or less, payment will be made for the quantity of work performed at the Contract unit price, unless eligible for adjustment pursuant to Article A.4.

If the total pay quantity of any item of work required under the Contract varies from the Bid quantity therefore by more than 25 percent, in the absence of an executed Contract Change Order specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with Articles A.3.a., A.3.b., or A.3.c. herein, as the case may be.

A.3.a. Increase of more than 25 percent: Should the total pay quantity of any item of work under the Contract exceed the Bid quantity by more than 25 percent, the work in excess of 125 percent of the Bid quantity (if not covered by an executed Contract Change Order specifying the compensation) will be paid for by adjusting the Contract unit price, or at the option of the Engineer, payment for the work involved in such excess will be made on the basis of Force Account as provided in Article F.4.

The Contractor's fixed costs which have been distributed over the Bid quantity will be deemed to have been recovered by the Contractor from the payments made for 125 percent of the Bid quantity, and will be excluded from the adjusted unit price.

A.3.b. Decreases of more than 25 percent: Should the total pay quantity of any item of work under the Contract be less than 75 percent of the Bid quantity, the quantity performed (unless covered by an executed Contract Change Order specifying the compensation) will be paid for by adjusting the Contract unit price, or at the option of the Engineer, payment for the quantity of the work of such item performed will be made on the basis of Force Account as provided in Article F.4.

The Contractor's fixed costs which have been distributed over the Bid quantity will be redistributed over the pay quantity in determining the adjusted unit price.

The total payment for the final quantity of such item of work will in no case exceed the payment which would be made for the performance of 75 percent of the Bid quantity at the original Bid unit price.

A.3.c. **Deleted items:** Should any Contract item of work be deleted in its entirety (in the absence of an executed Contract Change Order covering the deletion), payment will be made to the Contractor for actual and direct costs, excluding overhead and profit, incurred prior to the date of notification in writing by the Engineer of the deletion, except as provided for costs of handling materials.

If acceptable material is ordered by the Contractor for the deleted item prior to the date of notification of the deletion by the Engineer, and if orders for such material cannot be canceled, it will be paid for at the actual cost to the Contractor, excluding overhead and profit. In such case, the material paid for shall become the property of the Owner and the cost of any further handling will be paid for as extra work as provided in Article A.5. If the material is returnable to the vendor and if the Engineer so directs, the material shall be returned and the Contractor will be paid for charges made by the vendor for returning the material, excluding any markup for overhead and profit to the Contractor. The cost of handling returned material will be paid for as extra work as provided in Article A.5.

A.4 CHANGES IN CHARACTER OF WORK: If an ordered change in the Plans or Specifications materially changes the character of the work of a Contract item from that on which the Contractor based his Bid price, and increases or decreases the actual unit cost of the changed item, an adjustment in compensation therefore will be made. Any such adjustment will apply only to the portion of the work of said item actually changed in character. At the option of the Engineer, the work of said item or portion of said item which is changed in character will be paid for by Force Account as provided in Article F.4.

Failure of the Engineer to recognize a change in character of the work at the time the Contract Change Order is issued shall in no way be construed as relieving the Contractor of his duty and responsibility of filing a written protest within the 15-day limit.

A.5 HAZARDOUS MATERIALS: Projects which include excavations deeper than four feet are subject to the provisions of Public Contracts Code Section 7104, which addresses the discovery of hazardous materials in connection with any excavation which may be required.

That section provides:

- a. That the Contractor shall promptly, and before the following conditions are disturbed, notify the Owner, in writing, of any:
 1. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
 2. Subsurface or latent physical conditions at the site differing from those indicated.
 3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.
- b. That the Owner shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a Contract Change Order under the procedures described in the Contract.

c. That, in the event that a dispute arises between the Owner and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

A.6 EXTRA WORK: New and unforeseen work will be classified as extra work when determined by the Engineer that such work is not covered by any of the various items for which there is a Contract price or by combinations of such items. In the event portions of such work are determined by the Engineer to be covered by some of the various items for which there is a Contract price or combination of such items, the remaining portion of such work will be classed as extra work. Extra work also includes work specifically designated as extra work in the Plans or Specifications.

The Contractor shall do such extra work and furnish material and equipment therefore upon receipt of a Contract Change Order or other written order from the Engineer, and without a Contract Change Order or other written order of the Engineer, he shall not be entitled to payment for such extra work. Where such extra work is ordered by a written order other than a Contract Change Order, the Engineer will, as soon as practicable, issue a Contract Change Order. The provisions in Article A.2 shall be fully applicable to the subsequently issued Contract Change Order. Payment for extra work required to be performed pursuant to the provisions of this section, in the absence of an executed Contract Change Order, will be made by Force Account as provided in Article F.4, or as agreed to by the Contractor and the Engineer.

A.7 GUARANTEE: The Contractor shall guarantee all of his work against defective material or faulty workmanship for a period of one year after the date of acceptance of the work by the Owner.

The Contractor shall repair or replace to the satisfaction of the Engineer any or all such work that may prove defective in workmanship or materials within that period, ordinary wear and tear and unusual abuse or neglect excepted, together with any other work which may be damaged or displaced in so doing.

In the event of failure to comply with the above mentioned conditions within a reasonable time after being notified in writing, the Owner is authorized to have the defects repaired and made good at the expense of the Contractor who will pay the cost and charges therefore immediately upon demand.

The signing of the Contract by the Contractor shall constitute execution of the above guarantees. The Contract Performance Bond shall remain in full effect during the guarantee period and will not be released until the expiration of such period.

B. PROGRESS AND COMPLETION OF THE WORK

B.1 PROGRESS OF THE WORK AND TIME OF COMPLETION: The Contractor shall begin work within 15 days after receipt of a Notice to Proceed. He shall diligently prosecute the same to completion within the number of days set forth in the Special Conditions.

B.2 LIQUIDATED DAMAGES: It is agreed by the parties of the Contract that in case all work called for under the Contract is not completed within the number of days specified in the Special Conditions, damage will be sustained by the Owner; and it is further agreed that it is, and will be, impractical and extremely difficult to ascertain and determine the actual damage which the Owner will sustain by the delay. It is therefore agreed that the Contractor will pay to the Owner the sum of \$600.00 per day for each and every day's delay in finishing the work. The Contractor agrees to pay said liquidated damages and further agrees that the Owner may deduct the amount thereof from the monies due or to become due the Contractor under this Contract.

It is further agreed that if the work called for under the Contract is not completed within the number of days specified in the Special Conditions, the Owner shall have the right to increase the number of days or not, as he decides will best serve his interest. If the Owner decides to increase the number of days, he shall further have the right to charge the Contractor, his heirs, assigns, or sureties, and to deduct from the final payment for the work, all or any part, as he may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the Contract and which accrue during the period of such extension, except that the cost of final surveys and preparation of the final estimate shall not be included in such charges.

B.3 DELAYS AND EXTENSIONS OF TIME: The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering, inspection, superintendence and other overhead expenses during any delay beyond the time named for the completion of the work caused by an act of God or by the public enemy, acts of the Owner, fire, floods, epidemics, quarantine restrictions, strikes, unusual shortage of materials and freight embargoes. In the event of such delay, the Contractor shall notify the Engineer in writing of the causes of delay within 10 days from the beginning of such delay, and his findings thereon shall be final.

B.4 PROGRESS SCHEDULE AND ORDER OF COMPLETION: Within 10 days after receipt of a Notice to Proceed, the Contractor shall submit to the Engineer a progress schedule showing a breakdown of the work into at least all of its major items, and showing the proposed dates of starting and completing these items of work. This schedule shall also conform to the requirements for completion of portions of the work as may be specified in the Special Conditions. The Contractor shall review and, if necessary, revise the progress schedule at least once a month and in any event shall submit a current schedule to the Engineer at his request at any time during the Contract period.

C. CONTROL OF THE WORK

C.1 ASSIGNMENT: Neither party of the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any monies due, or to become due to him hereunder, without the previous written consent of the Owner.

ANTITRUST CLAIMS ASSIGNMENT: To the extent this Contract constitutes a 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 Owner 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. Section 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 is made and becomes effective at the time the Owner tenders final payment to the Contractor, without further acknowledgment by the parties.

C.2 RIGHTS OF VARIOUS INTERESTS: Wherever work being done by the Owner's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer, to secure the completion of the various portions of the work in general harmony.

C.3 SEPARATE CONTRACTS: The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

If any part of the Contractor's work depends upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable. His failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work except as to defects which may later develop in the other contractor's work. In addition, the Contractor shall measure work already in place and shall immediately report to the Engineer any discrepancy between the executed work and that shown on the Plans.

C.4 SUBCONTRACTS: No subcontractor will be recognized as such, and all persons engaged in the work will be considered as employees of the Contractor and he will be held responsible for their work, which shall be subject to the provisions of the Contract Documents. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

C.5 CONTRACT DOCUMENTS: The various parts of the Contract Documents, as defined in the Instructions to Bidders, are complementary and a requirement stated in one is as binding as though stated in all. They are intended to be cooperative and to describe and provide for a complete work.

In the event of conflict between the Instructions to Bidders and the Special Conditions, the Special Conditions shall govern. In the event of conflict between the General Conditions and the Special Conditions, the Special Conditions shall govern. In the event of conflict between the

Plans and the Technical Specifications, the Technical Specifications shall govern, except that where items are shown on the Plans and are not specifically included in the Technical Specifications, the Plans shall govern.

C.6 ENGINEER'S AUTHORITY: The Engineer is the representative of the Owner and has full authority to interpret the Contract Documents, to enforce the requirements thereof and to decide questions which arise during the course of the work. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the Contract Documents.

If at any time before the commencement or during the progress of the work, tools, plant or equipment appear to the Engineer to be insufficient, inefficient, or inappropriate to secure the quality of work required or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, or to improve their character, or to augment their number, or to substitute new tools, plant or equipment as the case may be, and the Contractor must conform to such order; but the failure of the Engineer to demand such increase of efficiency, number, or improvement shall not relieve the Contractor of his obligation to secure the quality of work and the rate of progress necessary to complete the work in accordance with the Contract Documents.

In giving instructions, the Engineer shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purpose of the work.

C.7 INSPECTION OF WORK: The Engineer and his representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection. If the Specifications or the Engineer's instructions require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection. Inspection by the Engineer will be made promptly. If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination at the Contractor's expense.

The inspection of the work or materials shall not relieve the Contractor of any of his obligations to fulfill his Contract as prescribed. Work and materials not meeting such requirements shall be made good and unsuitable work or materials may be rejected, notwithstanding that such work or materials may have been previously inspected by the Engineer or that payment therefore has been included in a progress estimate.

Re-examination of questioned work may be ordered by the Engineer and if so ordered, the work must be uncovered by the Contractor. If such work is found to be in accordance with the Contract Documents, the Owner will pay the cost of re-examination and replacement. If such work is not found to be in accordance with the Contract Documents, the Contractor shall pay such cost.

Projects financed in whole or in part with State or federal funds shall be subject to inspection at all times by the State or federal agency involved. Where any part of the work is being done under an encroachment permit or building permit, or is subject to State, County or municipal codes, laws or ordinances, representatives of the governing agency shall have full access to the

work and shall be allowed to make any inspection or tests in accordance with such permits, codes, laws or ordinances. If advance notice of the readiness of the work for inspection by the governing agency is required, the Contractor shall furnish such notice to the appropriate agency.

C.8 SUPERINTENDENCE: The Contractor shall designate in writing before starting work, an authorized representative who shall have complete authority to represent and to act for the Contractor. Said authorized representative shall be present at the site of the work at all times while work is actually in progress on the Contract. During periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required.

Whenever the Contractor or his authorized representative is not present on any particular part of the work where it may be desired to give direction, orders will be given by the Engineer, which 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.

Any order given by the Engineer, not otherwise required by the Contract Documents to be in writing will, on request of the Contractor, be given or confirmed by the Engineer in writing.

C.9 CHARACTER OF WORKMEN: If any subcontractor or person employed by the Contractor shall fail or refuse to carry out the directions of the Engineer or shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, he shall be removed immediately on the requisition of the Engineer, and such person shall not again be employed on the work.

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

Neither party shall employ or hire any employee of the other party without his consent.

C.10 PLANS, SPECIFICATIONS AND INSTRUCTIONS: Unless otherwise provided in the Special Conditions, the Engineer will furnish to the Contractor, free of charge, all copies of Plans and Specifications reasonably necessary for the execution of the work. He will also furnish with reasonable promptness additional instructions, either as supplemental drawings or otherwise, as may be necessary for the proper execution of the work. The Contractor shall keep one copy of all Plans and Specifications, including any Addenda and Contract Change Orders, on the work in good order available to the Engineer and his representatives.

Should the Contractor be in doubt as to the meaning of any provision in the Plans and Specifications, or should he find any errors or omissions therein, or should he find any errors or omissions in the layout or staking, he shall immediately notify the Engineer. The Engineer will promptly investigate and will furnish the Contractor with any additional instructions as may be required.

Unless otherwise noted in the Special Conditions, upon completion of all Contract work, the Contractor shall provide the Engineer with one complete set of Plans and Specifications with all "As Built" changes or modifications marked and annotated.

C.11 CONSTRUCTION STAKING: Unless otherwise noted in the Special Conditions, the Engineer will set such construction stakes and marks as he determines are necessary to establish the lines and grades required for the completion of the work specified in the Contract Documents. Whenever the Contractor requires construction stakes, he shall notify the Engineer of his requirements at least two days in advance of starting operations that require such stakes.

Stakes and marks set by the Engineer shall be carefully preserved by the Contractor. In case such stakes or marks are destroyed or damaged, they will be replaced at the Engineer's earliest convenience. The Contractor shall be charged for the cost of replacing or restoring stakes and marks which are destroyed or damaged by his operations. This charge will be deducted from any monies due or to become due to the Contractor under the Contract.

C.12 PERMITS AND REGULATIONS: Permits and licenses of a temporary nature necessary for the prosecution of the work shall be obtained by the Contractor at his expense. Unless otherwise specified in the Special Conditions, permits and licenses for permanent structures or permanent changes in existing facilities will be secured and paid for by the Owner. Copies of any permits and licenses which are obtained by the Owner will be on file at his office and will be available for inspection by the Contractor. The Contractor shall acquaint himself with, and abide by, any requirements of these documents. The Contractor shall obtain any supplemental agreements or bonds required by any encroachment permit, and he shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work. If the Contractor observes that the Plans and Specifications are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the Contract Documents for changes in the work. If the Contractor performs any work, knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, he shall bear all costs arising therefrom.

C.13 LANDS FOR WORK: The Owner shall provide the lands, easements and rights-of-way upon which the work under this Contract is to be done. Unless he specifically makes other arrangements, the Contractor shall confine his operations to the limits of the Owner's land and to the limits of the easements and rights-of-way. The Contractor shall provide land required for the erection of temporary construction facilities and storage of his material.

C.14 SUSPENSION OF WORK: The Owner may at any time suspend the work, or any part thereof, by giving one day's notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the Owner to the Contractor to do so. The Owner will reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of such suspension, except that no reimbursement will be made if the suspension is due to non-conformance with the Contract Documents on the part of the Contractor. If the work or any part thereof shall be stopped by notice in writing, and if the Owner does not give notice in writing to the Contractor to resume work within 30 days of the date fixed in written notice to suspend, the Contractor may abandon the suspended portion of the work and will be entitled to payment for all work acceptably done on the abandoned portions.

C.15 THE OWNER'S RIGHT TO DO WORK: If the Contractor should neglect to prosecute the work properly or fail to perform any provision of the Contract, the Owner, after 3 days' written notice to the Contractor, may, without prejudice to any other course of action he may have, perform or have performed by other forces, all or any portion of the work and may deduct the cost thereof from the monies due or to become due the Contractor under this Contract.

C.16 THE OWNER'S RIGHT TO TERMINATE CONTRACT: If the Contractor should be adjudged bankrupt, or should make a general assignment for the benefit of his creditors, or if a receiver should be appointed because of his insolvency, or if he should persistently or repeatedly refuse or should fail to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for materials or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certification of the Engineer that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 7 day's written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price exceeds the expenses of finishing the work, including compensation for all attributable administrative costs and for damages incurred through the Contractor's default, such excess shall be paid to the Contractor. If such expenses exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expenses incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Engineer.

C.17 REMOVAL OF EQUIPMENT: In the case of annulment of this Contract before completion for any cause, the Contractor, if notified to do so by the Owner, shall promptly remove any part or all of his equipment and supplies from the Owner's property. If not promptly done, the Owner shall have the right to remove such equipment and supplies at the expense of the Contractor.

C.18 CORRECTION OF WORK: The Contractor shall promptly remove from the premises all materials condemned by the Engineer as failing to conform to the Contract Documents whether incorporated in the work or not. The Contractor shall, at his own expense, promptly replace such materials and perform all work made necessary by such replacement, including making good all work of others destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned work and materials within a reasonable time, fixed by written notice, the Owner may remove and store the material at the expense of the Contractor. If the Contractor does not pay for the expense of the removal within 10 days' time thereafter, the Owner may, upon 10 days' written notice, sell such materials at auction or at private sales and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

C.19 DEDUCTIONS FOR UNCORRECTED WORK: If the Engineer deems it inexpedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore.

C.20 USE OF COMPLETED PORTIONS: The Owner shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work or such portions may not have expired, but taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the work, the Contractor shall be entitled to extra compensation, or extension of time or both, as the Engineer may determine.

C.21 CONTRACTOR CLAIMS: Appropriate claims shall be submitted and reviewed in accordance with Section 20104 of the Public Contracts Code. For any claim subject to this Article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided in the Contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars (\$50,000), the Owner shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the Owner may have against the Contractor.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the Owner and the Contractor.

(3) The Owner's written response to the claim, as further documented, shall be submitted to the Contractor within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the Contractor in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the Owner shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the Owner may have against the Contractor.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the Owner and the Contractor.

(3) The Owner's written response to the claim, as further documented, shall be submitted to the Contractor within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

(d) If the Contractor disputes the Owner's written response, or the Owner fails to respond within the time prescribed, the Contractor may so notify the Owner, in writing, either within 15 days of receipt of the Owner's response or within 15 days of the Owner's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the Owner shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the Contractor may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the Contractor submits his or her written

claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

It is hereby mutually agreed that the Contractor shall not be entitled to payment of additional compensation for any cause, including any act or failure to act by the Engineer, or of any event, thing or occurrence, unless he shall have given the Engineer due written notice of potential claim, provided however, that compliance with this Article shall not be a prerequisite as to matters within the scope of the protest provisions in Article A.2, nor to any claim which is based on differences in measurements or errors of computation of Contract quantities.

The written notice of potential claim shall set forth the reasons the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. The required notice must have been given to the Engineer prior to the time the Contractor performed the work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the Engineer, or in all other cases within 15 days after the event, thing or occurrence giving rise to the potential claim.

In the event of an emergency endangering life or property, the Contractor shall act as stated in Article D.4, and after execution of the emergency work, shall present an accounting of labor, materials, and equipment in connection therewith. The procedure for any payment that may be due for emergency work will be as specified in Article A.2.

The Engineer shall, within a reasonable time after their presentation to him, state his decisions in writing on all claims of the Owner or the Contractor. All such decisions of the Engineer shall be final.

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract be brought to the attention of the Engineer at the earliest possible time so that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any act, failure to act, event, thing or occurrence for which no written notice of potential claim was filed.

C.22 CLEANING UP: The Contractor shall, at his own expense, promptly remove from the Owner's property, and from all other lands affected by his work, all temporary structures, rubbish and waste materials resulting from his operations. He shall leave such lands in a neat and orderly condition which is at least as good as the condition prior to his operations.

D. INSURANCE AND LIABILITY

D.1 CONTRACTOR'S LIABILITY INSURANCE: The Contractor shall maintain insurance to protect him from claims under workman's compensation acts and from any other claims for damages for personal injury, including death, which may arise from operations under this Contract, whether such operations are controlled by him, a subcontractor or by anyone directly or indirectly employed by either of them. The Owner shall be named as coinsured in all such insurance policies and the coverage shall include concurrent negligence of the Owner or his agents, employees, or representatives whether such concurrent negligence be active or passive, including specifically any liability based upon a violation of any non-delegable duties. Certificates of insurance and the certificate required by Labor Code Section 1861 shall be filed with the Engineer prior to commencing the work, and shall be subject to his approval for adequacy of protection.

The Contractor specifically obligates himself and hereby agrees to protect, hold free and harmless, defend and indemnify the Owner, the Engineer and his consultants, and each of their officers, employees and agents, from any and all liability, penalties, costs, losses, damages, expenses, causes of actions, claims or judgments, including attorney's fees, which arise out of or are in any way connected with the Contractor's performance of his work under this Contract. To the extent legally permissible, this indemnity and hold harmless agreement by the Contractor shall apply to any acts or omissions, whether active or passive, on the part of the Contractor or his agents, employees, representatives, or subcontractors, or his subcontractor's agents, employees and representatives, resulting in liability irrespective of whether or not any acts or omissions of the parties to be indemnified hereunder may have also been a contributing factor to the liability.

As a further precaution toward this end, the Contractor shall procure and maintain, in full force and effect during the performance of the work contemplated thereunder, insurance in his favor and also in favor of the Owner, with an insurance carrier approved by the Owner, as follows:

Liability for Personal Injury or Property Damage in the amount of \$1,000,000.00 for any occurrence.

The Contractor shall, before the commencement of the work, take out and maintain in full force and effect, compensation insurance with an insurance carrier or carriers under an insurance policy or policies, satisfactory to the Owner covering his full liability under the "Worker's Compensation Insurance and Safety Act" of the State of California to any employee who may be injured during the course of said work and to the dependents of any employee who may be killed during the course of said work.

Such policy or policies shall expressly provide therein that they shall not be canceled by the insurer until 10 days after written notice of the intended cancellation thereof shall have first been given to the Owner by the insurer.

The Contractor shall file with the Owner, immediately after the signing of the Contract, certificates of all insurance. These certificates shall be fully executed and shall state that the policies cannot be canceled until 10 days after written notification of such intent of cancellation

has been given to the Owner. All policies shall be with Insurance Companies acceptable to the Owner.

In case of the breach of any provision of this Article, the Owner may take out and maintain at the expense of the Contractor such insurance as the Owner may deem proper and may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Contract.

D.2 FIRE INSURANCE: The Contractor shall take out and maintain fire insurance on the entire structure on which work under this Contract is to be done. This insurance will be in the amount of 100 percent of the insurable value of the structure, including items of labor and materials during construction, and 100 percent of the insurable value of the completed structure. The coverage shall be maintained by the Contractor until final acceptance of the work by the Owner.

The loss, if any, is to be made adjustable with and payable to the Owner as Trustee for whom it may concern, except in cases which require payment of all or a portion of said insurance to be made to a mortgagee as his interest may appear.

The Contractor, on his written request, shall be named jointly with the Owner in all policies, all of which shall be open to his inspection. If the Owner fails to show them on request, or if he fails to effect or maintain as above, the Contractor may insure his own interests and charge the cost thereof to the Owner. If the Contractor is damaged by failure of the Owner to maintain such insurance, he may recover as stipulated in the Contract for recovery of damages.

The Trustee shall deposit any money received from insurance in an account separate from all his other funds and he shall distribute it in accordance with such agreement as the parties in interest may reach. If after loss no special agreement is made, replacement of injured work shall be ordered and executed as provided for under changes in the work.

The Trustee shall have power to adjust and settle any loss with the insurers unless the Contractor shall object in writing within 3 days of the occurrence of loss, and thereupon arbitrators shall be chosen. The Trustee shall in that case make settlement with the insurers in accordance with the directions of the arbitrators, who shall also, if distribution by arbitration is required, direct such distribution.

EXCLUSION: This insurance does not cover any tools owned by mechanics, any tools, equipment, scaffoldings, stagings, towers, or supplies, and any temporary structures erected for the Contractor's operations.

D.3 PRESERVATION OF PROPERTY: The Contractor shall take whatever precautions necessary to prevent damage to all existing improvements, including aboveground and underground utilities, trees and shrubbery that are not specifically shown to be removed, fences, signs, mail boxes, survey markers and monuments, building and structures, the Owner's property, adjacent property and any other improvements or facilities within or adjacent to the work. If such improvements or property are injured or damaged by the Contractor's operations, they shall be replaced or restored, at the Contractor's expense, to a condition at least as good as the condition prior to the start of the Contractor's operations.

The Contractor shall examine all bridges, culverts, and other structures over which he will move his materials and equipment, and before using them, he shall properly strengthen such structures, where necessary. The Contractor will be held responsible for any and all injury or damage to such structures caused by his operations.

The fact that any pipe or other underground facility is not shown, or not accurately shown on the Plans, shall not relieve the Contractor of his responsibility under this Article. It shall be the Contractor's responsibility to ascertain the existence of any underground improvements or facilities which may be subject to damage by his operations.

D.4 PROTECTION OF WORK: The Contractor shall continuously maintain adequate protection of all his work from damage. He shall make good any such damage, injury or loss, except as may be directly due to errors in the Contract Documents or caused by agents or employees of the Owner. He shall adequately protect adjacent property as provided by law and the Contract Documents. He shall provide and maintain all passage-ways, guard fences, lights and other facilities for protection required by public authority or local conditions.

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor, without special instruction or authorization from the Engineer, is hereby permitted to act at his discretion to prevent such threatened loss or injury, and he shall so act without appeal if so instructed or authorized. Any compensation claimed by the Contractor for emergency work shall be determined as specified under Article A.2.

D.5 PUBLIC SAFETY: The Contractor shall be responsible for furnishing and maintaining all flagmen, warning signs, barricades, emergency lighting, shoring, etc. necessary to protect the public and workmen employed on the project. Safety provisions shall conform to all applicable federal, State, County and local laws, ordinances and codes and, in particular, to the rules and regulations established by OSHA and the California Division of Industrial Safety.

D.6 ACCIDENTS: The Contractor shall provide at the site such equipment and medical facilities as are necessary to give first-aid service to anyone who may be injured.

The Contractor must promptly report in writing to the Engineer all accidents arising from or in connection with the performance of the work on or adjacent to the site, giving full details and statements of witnesses. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Engineer and the Owner.

If any claim is made against the Contractor or any subcontractor because of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

E. LABOR AND MATERIALS

E.1 HOURS OF LABOR: The Contractor shall forfeit, as penalty to the Owner, \$25.00 for each workman employed in the execution of the Contract by him, or by any subcontractor under him, for each calendar day any workman is required or permitted to labor more than 8 hours in violation of the provisions of the Labor Code and in particular, Section 1810 to Section 1815 thereof, inclusive.

E.2 EMPLOYMENT OF APPRENTICES: The Contractor's attention is directed to Section 1777.5 of the Labor Code; provisions of said section pertaining to employment of indentured apprentices are hereby incorporated by reference into these Specifications. As applicable, the Contractor or any subcontractor employed by him in the performance of the Contract work shall take such actions as necessary to comply with the provisions of said Section 1777.5.

E.3 LABOR DISCRIMINATION: Attention is directed to Section 1735 of the Labor Code, which reads as follows:

"No discrimination shall be made in the employment of persons upon public works because of the race, color or religion of such persons and every contractor for public works violating this section is subject to all the penalties imposed for a violation of this chapter."

E.4 PREVAILING WAGE: The Contractor shall forfeit as penalty to the Owner, \$50.00 for each calendar day or portion thereof, for each workman paid less than stipulated prevailing rates for any work done under the Contract by him or by any subcontractor under him, in violation of the provisions of the Labor Code and in particular, Section 1770 to Section 1780 thereof, inclusive.

The Owner will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the Prevailing Wages set forth in the Contract Documents. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his Bid, and will not be considered as the basis of a claim against the Owner on the Contract.

The Contractor and each Subcontractor shall keep an accurate record showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week and the actual per diem wages paid to each journeyman, apprentice, worker or other employee by him or her in connection with the work. These payroll records shall be certified and made available for inspection at all reasonable hours at the principal office of the Contractor and furnished by the Contractor to the Owner and others upon request in accordance with the provisions of Labor Code Section 1776. The Contractor's attention is called to the penalties provided for in Section 1776 for the failure to comply with its provisions.

E.5 MATERIALS: Unless otherwise specifically stated in the Special Conditions, the Contractor shall furnish all materials necessary for the execution and completion of the work. Unless otherwise specified, all materials shall be new and shall be manufactured, handled and installed in a workmanlike manner to ensure completion of the work in accordance with the

Contract Documents. The Contractor shall furnish satisfactory evidence as to the kind and quality of materials.

Where materials are to be furnished by the Owner, the type, size, quantity and location at which they are available will be stated in the Special Conditions.

In certain instances, the Owner may have available power, water or other utilities or materials which the Contractor may wish to use. If the Owner intends to furnish these free of charge, it will be so stated in the Special Conditions. In the absence of such specific statement, the Contractor shall furnish all utilities and materials at his own expense.

E.6 RECORDS OF MATERIALS PURCHASED: If required by the Engineer, the Contractor shall furnish duplicate invoices to the Engineer for all materials furnished to the project.

E.7 PATENTS: The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the Owner and the Engineer from all suits at law, or actions of every nature for, or because of the use of any patented materials, equipment, devices, or processes.

E.8 OWNERSHIP OF REMOVED MATERIALS: Unless otherwise specifically stated in the Special Conditions or Technical Specifications, any existing equipment or material removed by the Contractor during the course of the work shall remain the property of the Owner. Equipment and materials shall be removed with care to prevent unnecessary damage and shall be neatly stored at a location adjacent to the site of the work as directed by the Engineer.

E.9 SUBSTITUTION OF MATERIALS: Where materials and equipment are specified in the Technical Specifications or are shown on the Plans as similar and equal to a certain proprietary brand, the intent is to establish the minimum quality and performance acceptable. If the Contractor proposes to substitute materials or equipment of another proprietary brand but of equal quality, he may submit a request to the Engineer for approval of the proposed substitution. No substitution may be made without prior approval and the Engineer shall be the final judge of equality.

If any tests are necessary for evaluation of the proposed substitution by the Engineer, the Contractor shall furnish all necessary test materials and shall pay the cost of the tests.

E.10 SUBMISSION OF WORKING DRAWINGS: Unless otherwise specifically stated in the Special Conditions or Technical Specifications, the Contractor shall submit to the Engineer, four sets of working drawings for all items of equipment or fabricated materials to be installed in the work. These drawings shall show any necessary details in fabrication or erection which are not shown on the Plans furnished by the Owner and shall verify details and dimensions of equipment. The Contractor shall verify these dimensions before starting any work dependent on or affected by them.

E.11 TESTS: Unless otherwise specified in the Special Conditions, the Owner will pay for the required testing of materials. The Contractor will furnish all samples at no cost to the Owner. In

the event samples are submitted which fail to pass the specified tests, the Contractor will pay for all subsequent tests.

F. MEASUREMENT AND PAYMENT

F.1 MEASUREMENT OF QUANTITIES: Where the Contract provides for payment on a lump sum price basis, no measurement of quantities will be made. Where the Contract provides for payment on a unit price basis, the quantities of work performed will be computed by the Engineer on the basis of measurements taken by the Engineer, and these measurements shall be final and binding.

All work computed under the Contract shall be measured by the Engineer according to United States Measurements and Weights. Methods of measurement are specified in the Special Conditions and in the Technical Specifications.

F.2 SCOPE OF PAYMENT: The Contractor shall accept the compensation, as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed work and for performing all work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the work, from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until the acceptance by the Owner and for all risks of every description connected with the prosecution of the work, also for all expenses incurred in consequence of the suspension or discontinuance of the work; and for completing the work according to the Contract Documents. Neither the payment of any estimate nor any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

No compensation will be made for loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreements.

F.3 CHANGES IN THE WORK: The value of changes in the work, including extra work, shall be determined in accordance with Articles A.2 through A.5.

F.4 FORCE ACCOUNT PAYMENT: Where work is to be paid for by Force Account, the Contractor shall be paid on the basis of the actual cost of labor, material, and equipment, furnished by him as shown on paid vouchers, plus 15 percent. However, the Owner reserves the right to furnish such materials and equipment as he deems expedient, and the Contractor shall have no claim for overhead and profit on the cost of such material and equipment.

The cost of labor as referred to above shall include the cost of the base wages paid to workmen, plus any additional payment paid to, or on behalf of, workmen as required by State or federal laws plus any benefits, subsistence and travel allowance as may be required by collective bargaining agreements.

The cost of material as referred to above shall be the net cost to the purchaser, whether Contractor, subcontractor or other forces, from the supplier thereof.

The cost of equipment as referred to above, shall conform to current equipment rental rates prevailing in the locality, as determined and agreed upon in writing by the Engineer and by the Contractor. This applies to both rental equipment and equipment owned by the Contractor.

F.5 RECORDS OF FORCE ACCOUNT WORK: The Contractor shall maintain his records in a manner to provide a clear distinction between the direct costs of extra work paid for on a Force Account basis and the costs of other operations. The Contractor shall furnish the Engineer report sheets in duplicate of each day's extra work no later than the working day following the performance of the work. The daily report sheets shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The daily report sheets shall provide names or identifications and classifications of workmen, the hourly rate of pay and hours worked, and also the size, type and identification number of equipment and hours operated.

Material charges shall be substantiated by valid copies of vendor's invoices. Such invoices shall be submitted with the daily report sheets, or if not available, they shall be submitted with subsequent daily report sheets. Should vendor's invoices not be submitted within 15 days after acceptance of the work, the Owner reserves the right to establish the cost of such material at the lowest current wholesale prices at which the materials are available in the quantities concerned delivered to the location of the work.

Said daily report sheets shall be signed by the Contractor or his authorized agent.

The Engineer will compare his records with the daily report sheets furnished by the Contractor, make any necessary adjustments, and compile the costs of work paid for on a Force Account basis on daily extra work report forms. When these daily extra work reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed.

F.6 PAYMENTS WITHHELD: The Owner may withhold or, because of subsequently discovered evidence, nullify the whole or a part of any payment to such extent as may be necessary to protect himself from loss due to:

- a. Defective work not remedied.
- b. Claims filed or reasonable evidence indicating probable filing of claims.
- c. Failure of the Contractor to make payments properly to subcontractors or for material or labor.
- d. A reasonable doubt that the Contract can be completed for the balance then unpaid.
- e. Damage to another Contractor.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

The Contractor may, in accordance with the provisions of Public Contracts Code Section 22300, substitute securities for any monies which the Owner may withhold to insure performance under this Contract.

F.7 PROGRESS PAYMENTS: Once each month, the Engineer will make an estimate in written form of the total amount of work done and of the acceptable materials furnished and delivered by the Contractor on the site and not used to the time of such estimate, and the value thereof. To assist the Engineer in determining the value of acceptable materials which are on hand but not used, the Contractor shall furnish the Engineer with copies of invoices for all such materials. The Owner shall retain 5 percent of such estimated value of work done, and 50 percent of the value of materials so estimated to be on hand but not used.

This retention will serve as part security for the fulfillment of the Contract by the Contractor. The Owner shall pay monthly to the Contractor the balance not retained of the aforesaid, after deducting therefrom all previous payments and all sums to be retained.

When in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the Contract, or when in his judgment the total amount of the work done since the last estimate amounts to less than \$500.00, no pay estimate will be prepared and no progress payment will be made.

No estimates or payment shall be construed to be an acceptance of any defective work or improper materials.

The Contractor may, in accordance with the provisions of Public Contracts Code Section 22300, substitute securities for any monies which the Owner may withhold to insure performance under this Contract.

F.8 FINAL PAYMENT: Within 10 days after the completion of the work and its acceptance by the Owner, the Engineer will make a final estimate in writing of the quantities of work done and the value thereof, and will prepare a Notice of Completion to be filed by the Owner. At this time, a semi-final payment will be made to the Contractor provided that such payment is warranted under the terms of Article F.7. The amount of this payment shall be based on the total value of work acceptably performed under the Contract, subject to the same conditions and retentions as payments previously made under the monthly estimates.

Within 20 days after the date of the final estimate, the Contractor shall submit to the Engineer either his written approval of the final quantities, and value of work as determined by the Engineer, or a written statement of any and all claims for additional compensation claimed to be due under the Contract. No claim for which a notice of potential claim is required will be considered unless the Contractor has complied with the notice provisions of Article C.21, nor will any claim be considered that was not included in said written statement of claims.

Failure of the Contractor to submit claims within the specified 20-day period, regardless of whether or not he files written approval, shall constitute his acceptance of the quantities and value of work determined by the Engineer in the final estimate. No claim will be considered if filed after the specified 20-day period.

In the event the Contractor files claims within the specified 20-day period, the Engineer will, within 10 days after receipt of said claims, consider and investigate the Contractor's claims and make his final determination. Should he find any revision to be warranted as a result of his

investigation, the Engineer will immediately notify the Owner and the final pay estimate will be revised accordingly.

Thirty-five days after the date of filing the Notice of Completion, the Owner will pay the entire sum found to be due, after deducting all previous payments and all amounts to be retained under the provisions of the Contract. As a condition of such payment, the Owner may require the Contractor to furnish a release of all claims against the Owner arising by virtue of the Contract. Payment will be withheld for any contract items for which a release is not furnished.

All prior partial estimates and payments shall be subject to correction in the final estimate and payments.

F.9 PAYMENT OF TAXES: The Contract prices paid for the work include full compensation for payment of federal, State or local taxes.



SCOPE OF THE WORK:

The work to be done under this Contract consists of asphalt pavement grinding, roadway excavation, placement of aggregate base and HMA paving, construction of curb, gutter and sidewalk, curb ramps, residential driveways, storm drainage improvements, water system improvements, pavement markings, roadside signs and all necessary appurtenances, complete.

All construction shall conform to the requirements of the Contract Documents entitled:

**CITY OF LIVE OAK
CONTRACT DOCUMENTS
FOR
PENNINGTON ROAD EAST
OVERLAY PROJECT**

The intent of these contract documents is to provide for a completed work, and all items incidental and appurtenant to the specified items shall be included in the prices bid for the specified items.

DEFINITION OF TERMS:

Wherever the words "City" or "Owner" appears in these documents, they shall be understood to mean the City of Live Oak, California.

Wherever the word "Contractor" appears in these documents, it shall be understood to mean the party or parties constructing the improvements for acceptance by the Owner.

Wherever the word "Engineer" or "City Engineer" appears in these documents, it shall be understood to mean *Rolls, Anderson & Rolls*, Chico, California, acting either directly or through duly authorized agents.

STANDARD SPECIFICATIONS:

Where Standard Specifications or testing methods have been referred to, such as ASTM or AASHTO, the intent is to refer to the latest applicable issue or revision of such specifications or testing methods.

Where the State Standard Specifications are referred to, it shall mean the 2018 issue of the Standard Specifications, State of California, Business and Transportation Agency, Department of Transportation. Measurement and payment sections of the State Standard Specifications are specifically **NOT** included in these Specifications.

SPECIAL CONDITIONS

AWARD OF CONTRACT: Refer to Section H of the Instructions to Bidders. The Award of Contract, if made, will be made within 30 days of the opening of Proposals.

TIME OF COMPLETION: The Contractor shall diligently prosecute the work to completion within 45 working days after receipt of a Notice to Proceed from the Owner.

COORDINATION: The Owner and public utility companies reserve the right to enter upon the work for the purpose of making changes necessitated by the improvements being constructed under this Contract. The Owner of public utility will coordinate such work with the Contractor and all parties shall cooperate to the fullest extent possible.

The Contractor shall protect from damage all utilities and other facilities that are to remain in place, be installed, relocated or otherwise rearranged.

GENERAL AND SPECIAL CONDITIONS: Should a conflict arise between the General Conditions and the Special Conditions, the Special Conditions shall govern.

RIGHTS-OF-WAY: The Contractor shall confine his operations to the limits of the rights-of-way. The Contractor is advised that if additional working space is required outside the limits of the rights-of-way provided, such additional area must be obtained directly from the property owners by the Contractor for use during the construction period. The Owner shall be furnished with copies of **written** agreements or otherwise notified **in writing** if additional working space is acquired.

PERMITS AND LICENSES: It is the responsibility of the Contractor to secure all licenses and permits, and to pay all fees required for the work. The Contractor shall comply with all laws and regulations applicable to the work. No permits will be issued by the Owner for this work.

MAINTAINING TRAFFIC: The work shall be carried out in an orderly and systematic manner to present as little inconvenience as possible to public traffic. A minimum of one traffic lane shall be maintained on adjacent streets at all times.

MAINTAINING ACCESS: The Contractor shall schedule his work to avoid unnecessary interference with access through the work area by owners of abutting property. Particular care shall be taken to permit access to driveways at the end of each workday.

SPECIAL CONDITIONS

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MAINTAINING SERVICE: The Contractor shall schedule his work to minimize the interruption of water service to any affected property. New mains shall be installed, tested, flushed and pressurized, and services shall be transferred with minimum interruption, before existing water mains are cut off and capped or plugged. For scheduled interruptions of service, water services shall not be shut off before 9:00 a.m. and service shall be restored before 4:00 p.m.

NOTIFICATION: The Contractor shall notify property owners at least 24 hours before water service or access to the property will be interrupted.

HOURS OF OPERATION: The Contractor shall restrict his activities to the hours between 7:00 a.m. and 5:00 p.m.

REMOVAL AND SALVAGE OF EXISTING MATERIALS: All existing materials to be removed and salvaged by the Contractor shall be carefully handled to prevent damage, and shall be transported by the Contractor to the Owner's corporation yard located at 9633 N Street for storage.

DUST CONTROL: Where dust is created, either by the Contractor's vehicles or other vehicles, it shall be controlled by the Contractor through watering or preferably by cleaning up the material causing the dust. Dust control shall be continued as necessary until the work is accepted by the Owner.

NOISE CONTROL: All equipment used by the Contractor shall have noise muffling devices approved for use in residential areas.

SANITATION: The Contractor shall provide temporary sanitation facilities at the work site, and maintain such facilities throughout the period of work on the project.

SAFETY REQUIREMENTS: The Contractor shall be **solely** responsible for safety on the job. Inspection of the work being performed or acceptance of work completed does not imply any approval or acceptance by the Owner of safety measures used by the Contractor.

The Contractor shall furnish, erect, and maintain at all times, substantial barricades, fences, signs, or other adequate protection, shall furnish and operate warning lights, and shall provide flagmen. Warning lights shall be installed at suitable intervals and shall be in operation from sunset to sunrise.

The Contractor shall furnish, erect, and maintain at all times adequate sheeting, shoring, and bracing of all excavations in accordance with OSHA and California Industrial Safety

SPECIAL CONDITIONS

Regulations. The Contractor shall be **solely** responsible for the adequacy and sufficiency of the safety equipment used.

CONSTRUCTION WATER: The Owner will furnish water for dust control, cleaning operations, and testing from the Owner's existing system. No charge will be made for such water. However, it shall not be used wastefully, and it shall be the Contractor's responsibility to see that it is delivered to the place it is needed. The Contractor shall furnish and use only proper hydrant wrenches when obtaining water from fire hydrants. No fire hydrant shall be obstructed in case of fire in the area served by the hydrant.

DISPOSAL OF SURPLUS MATERIALS: The Contractor shall provide a suitable disposal site for all excavated materials, including asphalt and concrete, in conformance with the provisions in Section 5-1.20(B), "Contractor – Property Owner Agreement," of the State Standard Specifications . The Contractor shall provide the Owner with a copy of written authorization from the owner of the property upon which the surplus materials are to be placed before beginning work on the project.

TESTING: All required testing of materials and construction methods will be provided by the Owner. Should tests show materials or methods to be unacceptable, however, and re-testing of the same material is required, the cost of such re-testing will be deducted from payments due the Contractor.

SHOP DRAWINGS AND MATERIAL DATA: The Contractor shall submit a minimum of four copies of shop drawings and material data to the City Engineer for approval not less than five days before beginning construction. **Facsimile submittals will not be accepted.** Material and/or equipment shall not be fabricated, assembled, or shipped until the shop drawings or material data have been approved by the City Engineer.

The City Engineer will retain three copies of the shop drawings and material data, and will return one copy to the Contractor. If the Contractor desires additional copies, more than four copies must be submitted.

For this project, submittals shall include, but not be limited to valve boxes, manhole frames and covers, hot mix asphalt, seal coat materials, imported backfill materials and all technical design data required by the Engineer to verify product compliance with the Contract Documents.

UNDERGROUND SERVICE ALERT (USA): The Contractor shall notify the Underground Service Alert at least 72 hours before excavating.

EXISTING UTILITIES: Existing underground utilities are indicated on the drawings, based upon record information. The locations and depths of sewer laterals are unknown. The Contractor shall verify the exact locations in the field to avoid damage to existing facilities.

The Contractor shall cooperate with utility companies in locating facilities and shall exercise care in working adjacent to or crossing such facilities to avoid damage. Any damage to existing facilities caused by the Contractor's operation shall be repaired by the Contractor at his expense.

MAINTAINING ACCESS: The Contractor shall schedule his work to avoid unnecessary interference with access through the work area by owners of abutting property. Particular care shall be taken to permit access to driveways at the end of each workday.

NOTIFICATION: The Contractor shall notify property owners at least 24 hours before access to the property will be interrupted.

CLEANUP: The work area shall be kept in a neat and orderly condition during construction. The Contractor shall remove and dispose of all trash, debris and waste material resulting from his operations.

Upon completion of the work, the Contractor shall remove all debris, surplus material, equipment and supplies, and shall leave the entire work area in a neat, orderly condition.

INSURANCE REQUIREMENTS: FIRE INSURANCE, as specified in Section D.2 of the General Conditions is not required for this project.

Contractor shall procure and maintain for the duration of the Contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid.

A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of the Contractor providing insurance for bodily injury liability, and property damage liability for the limits of liability indicated below and including coverage for premises, operations and mobile equipment; products and completed operations; broad form property damage (including completed operations); explosion, collapse and underground hazards; personal injury; and contractual liability.
2. Automobile Liability Insurance, including coverage for all owned, hired and non-owned automobiles.

SPECIAL CONDITIONS

3. Workers' Compensation Insurance as required by the State of California and Employer's Liability Insurance.

B. Minimum Limits of Insurance

Contractor shall maintain no less than:

1. General Liability:

- a) \$1,000,000.00 per occurrence (combined single limit for bodily injury and property damage).
- b) \$2,000,000.00 aggregate for products-completed operations.
- c) \$2,000,000.00 general aggregate. This general aggregate limit shall apply separately to the Contractor's work under this Contract.
- d) \$5,000,000.00 umbrella or excess liability. Umbrella or excess policy shall include products liability and completed operations coverage. Further, the umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

2. Automobile Liability: \$1,000,000.00 combined single limit each accident for bodily injury and property damage. The umbrella or excess liability coverage required above shall also apply to automobile liability.

3. Employer's Liability:

- a) \$1,000,000.00 per accident for bodily injury by accident.
- b) \$1,000,000.00 policy limit for bodily injury by disease.
- c) \$1,000,000.00 for each employee for bodily injury by disease.

C. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retention must be declared to and approved by the City of Live Oak. At the option of the City of Live Oak, either the insurer shall reduce or eliminate such deductibles or self-insured retention as respects the City of Live Oak, its officers, officials, employees and volunteers: or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. Other Insurance Provisions

The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. The City of Live Oak, its officers, officials, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor, products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the City of Live Oak, its officers, officials, employees, agents or volunteers.

SPECIAL CONDITIONS

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2. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the City of Live Oak, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the City of Live Oak, its officers, officials, employees, agents or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City of Live Oak, its officers, officials, employees, agents or volunteers.
4. Coverage for such additional insureds shall not extend to liability:
 - a) arising from any defective or substandard condition of a City roadway which existed prior to the time the Contractor commenced work, unless such condition has been changed by the work or the scope of the work requires the Contractor to maintain existing City roadway facilities and the claim arises from the Contractor's failure to maintain; or,
 - b) for claims occurring after the work is completed and accepted unless these claims are directly related to alleged acts or omissions of the Contractor which occurred during the course of the work; or,
 - c) to the extent prohibited by Section 11580.04 of the Insurance Code.
5. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
6. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City of Live Oak.

E. Workers' Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the City, its officials, employees and volunteers for losses arising from work performed by the Contractor for the City.

F. Acceptability of Insurers

Insurance is to be placed with insurers that are acceptable to the City of Live Oak.

G. Verification of Coverage

Contractor shall furnish the City of Live Oak with original endorsements effecting coverage required by this clause. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be on forms provided by the City of Live Oak, all endorsements are to be received and approved by the City of Live Oak before work commences. As an alternative to the City of Live Oak's forms, the Contractor's

insurer may provide complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications.

H. Subcontractors

Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

If the Contractor fails to maintain such insurance, the City of Live Oak may take out such insurance to cover any damages for which the City of Live Oak might be held liable on account of the operations under this contract, and deduct and retain the amount of the premiums for such insurance from any sums due the Contractor under the contract. Nothing herein contained shall be construed as limiting in any way the extent to which the Contractor may be held responsible for payment of damages resulting from his operations, or those of any subcontractor under him.

I. No Personal Liability

Contractor shall indemnify and hold harmless City and its officers, officials, employees and volunteers from and against all claims, damages, losses and expenses including attorney fees arising out of the performance of the work described herein, caused in whole or in part by any negligent act or omission of the contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, except where caused by the active negligence, sole negligence, or willful misconduct of the City.

The following coverage or conditions are in effect:	Yes	No
The City, its officials, and employees are named on all liability policies described above as insureds as respects: (a) activities performed for the City by or on behalf of the named insured, (b) products and completed operations of the Named Insured, and (c) premises owned, leased or used by the Named Insured.		
Products and Completed Operations		
The undersigned will mail to the City 30 days' written notice of cancellation or reduction of coverage or limits.		
Cross Liability Clause (or equivalent wording)		
Personal injury, Perils A, B, and C		
Broad Form Property Damage		
X, C, U Hazards included		
Contractual Liability Coverage applying to this Contract		
Liquor Liability		
Coverage afforded the City, its officials, employees and volunteers as Insureds applies as primary and not excess or contributing to any insurance issued in the name of the City.		
Waiver of subrogation from Workers' Compensation Insurer.		

This certificate is issued as a matter of information. This certificate is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

Agency or Brokerage

Insurance Company

Address

Home Office

Name of Person to be Contacted

Authorized Signature

Date

Telephone Number

Note: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of official of insurer.

TECHNICAL SPECIFICATIONS INDEX

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LIVE OAK

CALIFORNIA

A. SCOPE

This section covers all work required to remove miscellaneous highway facilities, concrete and all objectionable material from the project site within the limits of the proposed construction. Removed facilities shall be disposed of, salvaged, relaid, reset, relocated or reconstructed as specified in these specifications or as shown on the plans.

B. DEFINITIONS

MISCELLANEOUS HIGHWAY FACILITIES shall include all structures, drainage, irrigation and sewer facilities, right of way and traffic control facilities, and any other miscellaneous improvements or facilities.

CONCRETE shall be defined as all or portions of mortared rubble masonry, brick or stone curbs, gutters and sidewalks; and portland cement concrete curbs, gutters, sidewalks, gutter depressions, driveways, aprons, slope paving, foundations, footings, and all other portland cement concrete or masonry construction. Concrete pipe and clay pipe will be considered as miscellaneous highway facilities to be removed, salvaged, relaid or disposed of.

C. WORKMANSHIP

GENERAL: Existing facilities which are to remain in place shall be protected. Trenches, holes, depressions and pits caused by the removal of highway facilities shall be backfilled with Class 2 aggregate base material as provided in Section TS 3-1, "Trench Excavation and Backfill", of these Technical Specifications.

Clearing and grubbing shall be in accordance with Section 17-2 of the State Standard Specifications and these Contract Documents. All areas shown on the plans shall be cleared and grubbed. No payment will be made to the Contractor for clearing and grubbing outside these limits, unless the work is authorized by the Engineer. The area above the natural ground surface shall be cleared of all vegetation, such as trees, logs, upturned stumps, roots of down trees, brush, grass, weeds and other objectionable material. Clearing and grubbing shall be performed in advance of grading operations and in accordance with the requirements specified in these Contract Documents.

All materials removed, which are not to be salvaged or reused, shall become the property of the Contractor and shall be removed from the site by the Contractor. The Contractor shall be responsible for obtaining a suitable disposal site in accordance with the Special Conditions.

Salvaged materials shall be delivered to the Owner's Public Works Department or other agreed upon site.

TRAFFIC STRIPES, PAVEMENT MARKINGS AND MARKERS: Traffic stripes and pavement markings shall be removed by any method that does not materially damage the existing pavement. Pavement marking images shall be removed in such a manner that the old

message cannot be identified. Where grinding is used, the pavement marking image shall be removed by grinding a rectangular area. The minimum dimensions of the rectangle shall be the height and width of the pavement marking. Residue resulting from removal operations shall be removed from pavement surfaces by sweeping or vacuuming before the residue is blown by the action of traffic or wind, migrates across lanes or shoulders, or enters into drainage facilities. Traffic stripes shall be removed before any change is made in the traffic pattern.

Pavement markers, including underlying adhesive, shall be removed by such methods that will cause the least possible damage to the pavement or surfacing. Damage to the pavement or surfacing caused by pavement marker removal shall be repaired by the Contractor at the Contractor's expense by methods acceptable to the Engineer. During the removal of ceramic type pavement markers, screens or other protective devices shall be furnished to contain any fragments as provided for in State Standard Specification 7-1.04, "Public Safety." Fragments resulting from the removal of pavement markers shall be removed from the highway before the lane or lanes are opened to public traffic.

DRAINAGE FACILITIES: Existing culverts, storm drain pipelines, inlets, manholes, or other drainage structures where shown on the plans shall be removed and disposed of. Resulting openings into existing structures that are to remain in place shall be plugged with concrete conforming to Section 90-2 "Minor Concrete" of the State Standard Specifications. The concrete shall contain not less than 505 pounds of cementitious material per cubic yard. The ends of culverts and storm drain pipelines shall be securely closed by a 0.5-foot thick tight fitting plug or wall of commercial quality concrete. Trenches, holes, depressions and pits caused by the removal of drainage facilities shall be backfilled with Class 2 aggregate base material as provided in Section TS 3-1, "Trench Excavation and Backfill", of these Technical Specifications.

Drainage ditches to be abandoned shall be backfilled as specified on the improvement plans.

CONCRETE: Removal of existing concrete shall be in accordance with Section 15 of the State Standard Specifications and these Contract Documents. Concrete shall be removed at the locations shown on the plans or where directed by the Engineer. Removal shall be to the lines and elevations shown, specified, or determined by the Engineer. Existing concrete shall be cut to a true line where new concrete is to join existing concrete. Concrete removal operations shall be performed without damage to any portion that is to remain in place. Damage to the existing concrete, which is to remain in place, shall be repaired to a condition equal to that existing prior to the beginning of removal operations. The cost of repairing existing concrete damaged by the Contractor's operations shall be at the Contractor's expense.

SIGNS, SIGN POSTS, AND SIGN FOUNDATIONS: Existing signs, sign posts, and sign foundations where shown to be removed on the plans shall be removed and disposed of. Holes, depressions and pits caused by the removal of signs, sign posts, and sign foundations shall be backfilled with Class 2 aggregate base material as provided in Section TS 3-1, "Trench Excavation and Backfill", of these Technical Specifications unless otherwise noted on the plans or directed by the Engineer. Existing signs, sign posts, and sign foundations shall not be removed until replacement signs have been installed or until the existing signs are no longer required for the direction of public traffic, unless otherwise directed by the Engineer.

FENCE: Where shown on the plans, existing fences shall be removed and rebuilt to conform to the new construction work. Fences shall be rebuilt with the same or better materials and shall be painted to match the existing fence.

D. MEASUREMENT AND PAYMENT

Clearing, grubbing and demolition will be paid on a lump sum basis and no measurement will be made.

Payment for clearing, grubbing and demolition will be made at the lump sum price provided in the bid, which shall include full compensation for furnishing all materials, labor, tools, equipment, and incidentals and for doing all the work necessary to complete clearing, grubbing and demolition, including the removal and disposal of the resulting materials, as shown on the plans, as specified in these specifications, and as directed by the Engineer.



A. SCOPE

This heading covers conform grinding and grinding of existing asphalt concrete paving, complete.

B. MATERIALS

Remove residual material from grinding operations concurrent with grinding activities, within 50 feet of the grinder or as ordered.

Residue from grinding asphalt concrete shall be disposed of in conformance with the provisions in Section 5-1.20(B), "Contractor – Property Owner Agreement," of the State Standard Specifications.

HMA for temporary tapers must be of the same quality as the HMA used elsewhere on the project.

C. WORKMANSHIP

Perform grinding of asphalt concrete pavement without the use of a heating device to soften the pavement.

Pavement grinding shall be performed with a self-propelled machine capable of grinding a minimum width of 6 feet and a depth of 0.08 foot in a single pass. The grinding machine shall be equipped with automatic controls to control the longitudinal grade and transverse slope of the cutter head.

Conform grinding shall be to a depth of 0.16 foot below the gutter lip or paving to be matched, and shall be uniformly tapered over the width designated on the plans, to zero depth. The depth, length, width, and shape of the grind must be as shown or as ordered. The final grind must result in a neat and uniform surface. Do not damage remaining surface.

Pavement grinding shall be to the depth, length, width, and shape indicated on the plans or as directed. The final grind must result in a neat and uniform surface. Do not damage remaining surface.

A drop-off of more than 0.15 foot is not allowed between adjacent lanes or at transverse joints open to public traffic.

If a drop-off between the existing pavement and the ground area at transverse joints cannot be avoided before opening to traffic, construct a temporary HMA taper. HMA for temporary taper must be:

1. Placed to the level of the existing pavement and tapered on a slope of 30:1 (Horizontal: Vertical) or flatter to the level of the ground area
2. Compacted by any method that will produce a smooth riding surface

3. Completely removed before placing the permanent surfacing. The removed material must be disposed of outside the highway right of way in conformance with the provisions in Section 5-1.20(B), "Contractor – Property Owner Agreement," of the State Standard Specifications.

Pavement grinding shall be coordinated with cleanup work and with construction of new hot mix asphalt to minimize the time during which traffic is routed over ground areas.

D. MEASUREMENT AND PAYMENT

Measurement of pavement and conform grinding will be made along the conformance line of gutters or paving to be matched multiplied by the average width of the grind. Payment will be made at the contract price per square yard, which shall include full compensation for furnishing all labor, materials, tools, equipment, transportation and incidentals, and for doing all work involved in pavement grinding, as shown on the plans and as required by these specifications.

A. SCOPE

This section covers trench excavation and backfill for water mains, storm drain pipelines and sanitary sewer pipelines, and excavation and backfill at storm drain and sanitary sewer manholes, water system appurtenances and storm drainage inlets.

B. MATERIALS

IMPORTED BEDDING MATERIAL shall be clean, washed sand or Class 2 aggregate base.

IMPORTED BACKFILL MATERIAL shall be Class 2 aggregate base.

LEAN CONCRETE BACKFILL shall consist of a fluid, workable mixture of the following ingredients:

WEIGHTS PER CUBIC YARD (SATURATED, SURFACE-DRY)

		<u>YIELD, CU. FT.</u>
ASTM C-150 / TYPE II CEMENT, LB	94	0.48
CONCRETE SAND, LB	1,500	8.84
3/8" BY #8 GRAVEL, LB	1,704	10.19
WATER, LB	100	1.60
TOTAL AIR, %	21.8 ± 3.0	<u>5.88</u>
TOTAL		27.00
WATER/CEMENT RATIO, LBS/LB	1.07	
CONCRETE UNIT WEIGHT, PCF	125.90	

The final mix design and mix consistency shall be subject to the approval of the City Engineer and/or the Caltrans inspector.

SLURRY CEMENT BACKFILL shall consist of a fluid, workable mixture of commercial quality concrete sand, cement and water. Not less than 94 pounds of cement shall be used for each cubic yard of material produced. Cement shall be portland cement conforming to Section 90-1.02 of the State Standard Specifications, except that testing will not be required.

AGGREGATE BASE shall be Class 2, 3/4-inch maximum, conforming to the requirements of Section 26 of the State Standard Specifications.

HOT MIX ASPHALT shall be 1/2-inch maximum size, Type A or Type B, conforming to the requirements of Section 39 of the State Standard Specification. Asphalt binder shall be PG 64-10, conforming to the requirements of Section 92 of the State Standard Specification.

TEMPORARY ASPHALT PAVING shall conform to Sections 39 and 93 of the State Standard Specifications. Aggregate shall be 1/2-inch maximum size, Type B. Bituminous binder shall consist of SC800 liquid asphalt.

CONCRETE for concrete collars shall be Class B concrete and concrete for thrust blocks and/or encasing pipe shall be Class C concrete in accordance with Section 90 of the State Standard Specifications. Concrete for concrete collars shall contain a minimum of 10 lbs. of lamp black per cubic yard.

C. EXCAVATION

GENERAL: The Contractor shall excavate whatever substance encountered to the lines and grades shown on the Plans. All material suitable for use as backfill shall be piled in an orderly manner a sufficient distance from the side of the trench to avoid overloading and to prevent sliding into the trench. The Contractor shall do such grading as is necessary to prevent surface water from entering the excavation.

Except with the specific approval of the Engineer, no more than 200 feet of open trench shall be excavated in advance of laying the pipe. Not more than 50 feet of trench excavation shall remain unbackfilled at the end of each day's work. The remainder of the trench shall be backfilled, compacted, and opened to traffic. All operations shall be carried out in an orderly fashion. Backfilling, compacting, and cleanup work shall be accomplished as sections of the pipe installation are approved and traffic through the work shall be impeded or obstructed as little as possible.

Where it is necessary to cross fences, temporary gates or other barriers, or satisfactory obstructions shall be installed by the Contractor as required to keep livestock and/or household pets from entering or leaving the property. All cut fences shall be restored to original condition upon completion of backfilling of the trench.

Where it is necessary to cross irrigation or drainage ditches, the backfill in the bottom and banks of such ditches shall be carefully placed and compacted to avoid settlement. Shape of the banks and bottom shall be restored and left in good condition.

If explosives are used for excavation, the Contractor shall obtain the necessary permits and comply with all local regulations. The utility companies or agencies supplying either sewer service, water, electricity, telephone service, or gas shall be informed if blasting is to be done in the vicinity of their facilities.

WIDTH OF TRENCH: Except where otherwise specifically permitted, banks of trenches shall be vertical, and shall be of uniform width from top to bottom. Trenches shall be a minimum of 12 inches wider than the external diameter of the pipe. The maximum width of the trench, measured at the top of the pipe, shall not exceed the width allowed for various strengths of pipe as may be specified elsewhere in the applicable sections of these Standard Specifications.

If no maximum width is elsewhere specified, the width measured at the top of the pipe shall not exceed the external diameter of the pipe, exclusive of bells and collars, plus 24 inches.

STRIPPING OF TOPSOIL: Where the trench crosses cultivated, residential, or meadow land not in a roadway, the top 12 inches of soil shall be stripped and stockpiled separately from the balance of the excavated material so that later it may be placed in the top of the trench backfill.

BRACING OF TRENCHES: Where required to prevent caving of the trench, the Contractor shall furnish and install bracing and sheeting as necessary to protect the excavation and to meet safety regulations. If required by the Engineer, the Contractor shall install sheeting and bracing as required to permit the Engineer safe access to the trench for inspection of the work. However, this requirement does not relieve the Contractor of the responsibility for maintaining the trench to meet safety regulations.

DEPTH OF TRENCH: The bottom of the trench shall be carried to the lines and grades shown on the Plans with proper allowance for the thickness of the pipe and for the type of bedding specified. Any part of the trench excavated below the proper grade shall be corrected with approved bedding material compacted to 95 percent relative density, at the Contractor's expense.

APPURTENANCES: Excavations for valve vaults and other similar structures shall be large enough to provide proper working room. Any over-depth in excavation shall be corrected with concrete or other approved material.

REMOVAL OF WATER: The Contractor shall remove and dispose of all water entering the excavation. Disposal of water shall be done in a manner to prevent damage or nuisance to adjacent properties. Water removed from the excavation shall not be disposed of in storm drainage facilities.

Straw waddles, gravel bags, sediment traps, or other devices shall be provided to prevent silt and sediment from entering storm drainage facilities. Placement and maintenance of devices shall be in accordance with the plans, any Storm Water Pollution Prevention Plan (SWPPP) developed for the project, and as directed by the Engineer.

Sufficient pumping equipment shall be provided to maintain the trench in a dry condition during the bedding and initial backfilling of the pipe.

D. TYPES OF BEDDING

NATIVE BEDDING AND SHADING: Native materials shall not be used as pipe bedding or pipe shading.

IMPORTED BEDDING: Imported bedding material shall be installed in a layer the full width of the trench and of proper thickness to form the bed for the pipe. After the imported bedding has been placed and spread, it shall be compacted to proper grade to not less than 95% relative density.

CONCRETE ENCASEMENT: Shall be installed at the locations and in the manner shown on the Plans. The pipe shall be temporarily supported on masonry blocks. Supports shall be set

accurately to grade with a minimum of two supports per joint of pipe. After the pipe has been laid and approved for covering, the pipe shall be bedded and encased in concrete as detailed on the Plans. Great care shall be taken not to float or shift the pipe during the concreting operation.

E. BACKFILLING

GENERAL: No backfilling shall be done until the installation to be covered has been inspected and approved for covering. Backfilling shall be carried out in an orderly fashion and, in general, shall be done as soon as approval has been given to cover the pipe. Compaction of the backfill shall proceed simultaneously with backfilling operations.

All excess backfill material shall be removed from within the right-of-way and disposed of by the Contractor. The location of the disposal site shall be the responsibility of the Contractor and shall be subject to approval of the Engineer. Removal of excess material shall be done immediately following backfilling.

Where trenches cross city streets, backfilling shall be completed immediately following excavation. No trenches across streets shall remain open overnight. All crossings shall be backfilled, compacted, and open to traffic at the end of each day's work. Major road crossings shall be excavated and backfilled in half widths of the traveled way so that at least one-half of the roadway is open to controlled traffic at all times during the work.

BEDDING AND COVERING PIPE: The bed for the pipe shall be final-graded by hand to the line and grade to which the pipe is to be laid, making proper allowance for the thickness of the pipe. The bed shall be hand-raked ahead of the pipe laying operation to remove any stones or lumps which will interfere with smooth and proper bedding. Bell holes shall be hand-dug at the location of the joints and shall be of sufficient size to allow proper making of the joint and to prevent the collar or bell of the pipe from bearing on the bottom of the trench. After the pipe has been laid and approved for covering, backfill shall be placed evenly on both sides of the pipe the full width of the trench. This material shall be placed by hand in layers and each layer shall be compacted to 95% relative compaction by use of approved tampers. For pipe 10 inches in nominal diameter or less, the first layer shall be half the outside diameter in thickness, and shall be tamped by hand. The thickness of the next layer shall be half of the diameter of the pipe plus 12 inches. For pipe 12 inches and larger in nominal diameter, the backfill material shall be placed in layers not more than 8 inches thick. Particular care shall be taken to attain the required compaction in the material supporting the underside of the pipe. Compaction by jetting or ponding shall not be permitted.

TRENCH BACKFILL ABOVE THE PIPE COVER:

BACKFILL WITHIN STATE HIGHWAY 99: Work within the Highway 99 right-of-way shall be in accordance with the Caltrans encroachment permit issued for the work. All backfill above the pipe envelope shall be lean concrete backfill unless otherwise shown on the Plans.

BACKFILL WITHIN PRIVATE DRIVEWAYS, ROADS, AND CITY STREETS: In public roads, backfill and compaction shall be done in accordance with the terms of the City Improvement Standards. The following requirements are minimums and do not relieve the Contractor of the responsibility of complying with any more stringent requirements of the City Standards.

The trench shall be backfilled in layers with suitable imported material which may be placed by machine. Material shall be placed in 8-inch thick layers and compacted by machine. Prior to commencing backfilling operations, the Contractor shall notify the Engineer of the method of compaction which he intends to use. No method will be approved until the Contractor has demonstrated, under actual field conditions, that such method will produce the degree of compaction required.

The trench backfill shall be compacted to a relative density of not less than 95 percent.

SLURRY CEMENT BACKFILL: Where shown on the Plans, and at locations approved by the Engineer, the trench shall be backfilled with slurry cement from the top of the pipe bedding envelope to the bottom of the trench resurfacing structural section.

Immediately after backfilling, all excess material shall be removed and disposed of in an approved disposal area.

F. TESTS

Where a degree of relative compaction is specified, the compaction characteristics of each soil type will be determined in accordance with ASTM D 1557, Procedure C. All field densities shall be expressed as a relative compaction in terms of the maximum density obtained in the laboratory by the foregoing standard procedure.

Field density tests shall be performed in accordance with ASTM D 2922, Direct Transmission Method, using the nuclear gauge, or ASTM D 1556, using the sand cone. The Owner will pay for compaction tests to verify that the Contractor has met all compaction requirements. However, the cost of all failing tests required due to the Contractor's failure to meet the specifications shall be paid for by the Contractor.

G. PROTECTION OF PAVING

During the entire construction period, the Contractor shall protect existing pavement. Track-laying equipment shall be equipped with pavement pads when used on pavement. Any pavement damaged, cracked, or broken by the Contractor's operation shall be removed and replaced to at least the original condition. Damaged pavement shall be restored to the satisfaction of the Engineer.

H. REMOVAL AND REPLACEMENT OF PAVING AND BASE

GENERAL: Only such paving shall be removed as is necessary to excavate the trench and install the pipe. Cuts at valve vaults shall be no larger than necessary to install the structure.

REPLACEMENT OF PAVING: Paving shall be replaced in accordance with the Specifications, the City Improvement Standards, and the details shown on the Plans. Pavement shall be replaced in all streets and highways as soon as possible after completion of backfilling. In no case shall any section of trench in public roads remain unpaved more than one week from the date that the excavation was made. Where trenches cross roadways, pavement shall be replaced the same day the excavation was made.

TEMPORARY PAVEMENT: Where weather conditions or time preclude placing permanent pavement, temporary pavement will be installed. Temporary paving will consist of a one-inch thick layer of premixed asphaltic surfacing material and shall be installed flush with the existing surface. Temporary pavement shall be maintained in a smooth and uniform condition, and shall be removed prior to placing permanent pavement.

PLACING AGGREGATE BASE: Where base material is required, the aggregate base shall be placed and compacted in one even layer to the depth shown on the Plans, and extending the full width of the trench. Segregation shall be avoided and extra care shall be taken in compacting the base near the sides of the trench. Relative compaction shall be not less than 95 percent.

PREPARATION FOR HOT MIX ASPHALT PAVING: Edges of existing paving shall be neatly cut along straight lines, and cut edges shall be vertical. All loose pieces or cracked sections of existing paving shall be removed. All vertical edges shall be coated with liquid asphalt-emulsion.

INSTALLING HOT MIX ASPHALT: Hot mix asphalt shall be placed, spread and compacted in conformance with the provisions of Section 39-3, "Method Construction Process", of the State Standard Specifications, the "Hot Mix Asphalt (HMA)" section of these Technical Specifications, and the following provisions.

Rolling equipment shall consist of power rollers equivalent to tandem rollers weighing not less than 7.5 tons.

The hot mix asphalt shall be spread at a temperature suitable for workability and to a depth that will compact to the required thickness as shown on the Plans. No material shall be spread when the outside temperature is less than 40° Fahrenheit. After spreading, the material shall be thoroughly compacted, smooth, and free of irregularities.

FOG SEAL: Hot mix asphalt shall be sealed with a fog seal coat in accordance with Section 37 of the State Standard Specification. Fog seal coat shall be applied at a rate such that the original emulsion will be spread with a residual asphalt rate of 0.06 gallons per square yard.

I. CLEAN UP

The Contractor shall clean up and dispose of all trash, debris, and excess material, and shall remove his equipment from the site of the work as completed.

J. GUARANTEE

The Contractor shall guarantee the work against settlement for a period of one year.

K. MEASUREMENT AND PAYMENT

No separate measurement of trench excavation and backfill will be made. Payment for all work under this section shall be included in the payment made for items of work requiring excavation and/or backfill.



A. SCOPE

This heading covers the removal and disposal of existing asphalt pavement, the excavation and disposal of roadway excavation materials to the design subgrade elevation, based upon the design structural section and the design cross-slopes, and the preparation of the roadway subgrade.

B. WORKMANSHIP

Paving and other materials within the roadway prism shall be completely removed from the site. Care shall be exercised in removal of all items to avoid damage to existing improvements including but not limited to existing curb and gutter, utility lines, and utility boxes.

Roadway Excavation materials shall be disposed of in conformance with the provisions in Section 5-1.20(B), "Contractor – Property Owner Agreement," of the State Standard Specifications.

All pavement shall be neatly cut along the limits of reconstruction and as directed by the City Engineer.

Roadway excavation shall be performed in accordance with Section 19-2 of the State Standard Specifications and these Technical Specifications.

The roadway subgrade shall be scarified to a minimum depth of 0.5-feet below the design subgrade elevation, unless shown otherwise on the plans, moisture-conditioned, and compacted to the following densities:

NON-COHESIVE SOILS: compact to a minimum of 95 percent of the maximum density as determined by ASTM D 1557, Procedure C, for a minimum depth of 0.5 feet below subgrade.

COHESIVE SOILS: compact to a minimum of 92 percent of the maximum density as determined by ASTM D 1557, Procedure C, for a minimum depth of 0.5 feet below subgrade.

Field density tests shall be performed in accordance with ASTM D 2922, Direct Transmission Method, using the nuclear gauge, or ASTM D 1556, using the sand cone.

If unsuitable subgrade material is encountered, the Contractor shall remove the unsuitable material as directed by the Engineer at a negotiated unit price and replace with Class 2 aggregate base at the unit price bid in the Proposal.

C. MEASUREMENT AND PAYMENT

No measurement of quantities will be made.

Payment for removal and disposal of existing paving and other materials within the roadway prism shall be included in the lump sum price provided in the bid for roadway excavation, which shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in removal and disposal of existing asphalt pavement, the excavation and disposal of roadway excavation materials to the design subgrade elevation, and the preparation of the roadway subgrade.

A. SCOPE

This heading covers the furnishing, placement and compaction of aggregate base material, complete.

B. MATERIALS

All aggregate base material shall be Class 2, 3/4-inch maximum, conforming to the requirements of Section 26 of the State Standard Specifications.

C. WORKMANSHIP

Aggregate base material shall be spread, watered, compacted and finished in accordance with requirements of Section 26 of the State Standard Specifications and these Technical Specifications.

The maximum compacted thickness of any one layer shall not exceed 0.5-foot. The aggregate base shall be compacted to at least 95 percent of the maximum density, as determined by ASTM D 1557, Procedure C. Field density tests shall be performed in accordance with ASTM D 2922, Direct Transmission Method, using the nuclear gauge, or ASTM D 1556, using the sand cone.

Shoulder backing shall be spread, watered and compacted in accordance with requirements of Section 19-9 of the State Standard Specifications and these Technical Specifications.

Remove weeds, grass, and debris from the area to receive shoulder backing. After placing the shoulder backing, water and compact it with a minimum of 2 passes with a steel-tired roller weighing at least 8 tons. Do not deposit shoulder backing on new pavement and complete shoulder backing within 5 days after placement of adjacent new surfacing.

D. MEASUREMENT AND PAYMENT

Measurement of aggregate base material will be made on the basis of weight, as determined by scale weight of each load of material. Materials shall be weighed in accordance with the provisions of Section 9 of the State Standard Specifications. The weight of water in the material at the time of weighing, in excess of one percentage point over the optimum moisture as determined by ASTM D 1557, will not be paid for. The actual moisture content of the material will be determined by ASTM D 2216.

Payment will be made at the contract price per ton for aggregate base, which shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing, placing, shaping, compacting and finishing the aggregate base material.



A. SCOPE

This heading covers the furnishing and placement of prime coat and paint binder, complete.

B. MATERIALS

PRIME COAT shall be grade SC-70 liquid asphalt conforming to the requirements of Section 93 of the State Standard Specifications.

TACK COAT shall be an asphaltic emulsion, Type and Grade SS1, conforming to the requirements of Section 94 of the State Standard Specifications.

C. WORKMANSHIP

PRIME COAT shall be applied to all aggregate base surfaces to receive hot mix asphalt, unless otherwise indicated on the plans. Application shall be in conformance with the provisions of Section 39-1.22 of the State Standard Specifications (2010 SSP No. 39-1.22) and shall be applied at the rate of not less than 0.20 gallons per square yard. Do not apply more prime coat than can be absorbed completely by the aggregate base in 24 hours.

If you request and if authorized, you may modify prime coat application rates.

Before paving, prime coat must cure for 48 hours.

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

TACK COAT shall be applied to all vertical surfaces of existing pavement, curbs, gutters, construction joints and to pavement to be resurfaced. Application shall be in conformance with the provisions of Section 39-2.01C(3)(f) of the State Standard Specifications and shall be applied at the following residual asphalt rates:

<u>New Hot Mix Asphalt (Between Layers)</u>	0.02 gal/sq yd
<u>PCC and Existing HMA Surfaces</u>	0.03 gal/sq yd
<u>Planned PCC and HMA Surfaces</u>	0.05 gal/sq yd

Tack coat may be omitted between layers of new hot mix asphalt during the same work shift if no dust, dirt, or extraneous material is present and the surface temperature is at least 140 degrees F.

FOG SEAL COAT shall be applied to the finished surface of hot mix asphalt. Tack coat, SS1, shall be applied to the surface of the pavement in conformance with the provisions of Section 37 of the State Standard Specifications. The application rate (residual asphalt) shall be 0.06 gallons per square yard.

Provisions shall be made by the Contractor, to keep traffic from tracking the fresh fog seal until it has cured.

D. MEASUREMENT AND PAYMENT

No measurement of liquid asphalt (prime coat) or asphaltic emulsion (tack coat) will be made.

Payment for furnishing and applying liquid asphalt and asphaltic emulsion shall be included in the prices bid for hot mix asphalt, and no separate payment therefor will be made.

A. SCOPE

This heading covers the furnishing, placement and compaction of hot mix asphalt (HMA) paving material, complete.

B. MATERIALS

HOT MIX ASPHALT (HMA) shall be 1/2-inch maximum size, medium grading, Type A, conforming to the requirements of Section 39 of the State Standard Specifications.

ASPHALT BINDER shall be PG 64-10 conforming to the requirements of Section 92 of the State Standard Specifications.

C. WORKMANSHIP

Hot mix asphalt shall be placed, spread and compacted in conformance with the provisions of the "Method Compaction" subsection of Section 39, of the State Standard Specifications, as modified below. Hot mix asphalt shall be spread in one operation with a self-propelled spreader ready for compaction without further shaping. Hot mix asphalt shall be placed in maximum 0.25-foot thick compacted layers.

Compaction shall be performed with self-propelled, reversible rollers, each with a separate operator, 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 steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.

First coverage of breakdown compaction shall be completed before the surface temperature drops below 240 degrees F. Breakdown and intermediate compaction shall be completed before the surface temperature drops below 190 degrees F. Finish compaction shall be completed before the surface temperature drops below 140 degrees F.

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 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 with 3 coverages using a steel-tired roller.

Perform finish compaction of HMA with 1 coverage using a steel-tired roller.

Hot mix asphalt shall be finished level with, or not more than 0.02-foot above, existing gutters. In no case shall the finished hot mix asphalt be lower than the edge of the gutter.

At lines of conformance to existing paving the finish course shall be feather-edged to provide a smooth transition to existing paving.

A fog seal coat shall be applied to the finished surface of the hot mix asphalt. Paint binder, SS1, shall be applied to the surface of the pavement in conformance with the provisions of Section 37 of the State Standard Specifications. The application rate (residual asphalt) shall be 0.06 gallons per square yard. Provisions shall be made by the Contractor, to keep traffic from tracking the fresh fog seal until it has cured.

D. MEASUREMENT AND PAYMENT

Measurement of hot mix asphalt will be made on the basis of weight, as determined by scale weight of each load of material, in accordance with the provisions of Section 9 of the State Standard Specifications.

Payment will be made at the contract prices per ton for hot mix asphalt, which shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and applying prime coat and paint binder, and in furnishing, spreading and compacting hot mix asphalt, and applying a fog seal.

A. SCOPE

This heading covers concrete work, complete.

B. MATERIALS

PORTLAND CEMENT shall be Type II and conform to ASTM Specification C150. All cement shall be protected from moisture until used.

CONCRETE AGGREGATES:

GENERAL: Concrete aggregate shall conform to ASTM Specification C33. The sieves used in Sieve Analysis shall be square mesh wire cloth. Both coarse and fine aggregate shall be tested for soundness by ASTM Method C88 when in the judgment of the Engineer such tests are necessary to determine the quality of the materials.

FINE AGGREGATE shall consist of natural sand having hard, strong and durable particles. It shall not contain more than 2 percent by weight of clay, shale, schist, alkali, or other deleterious substances. The grading of fine aggregate shall range uniformly from coarse to fine.

COARSE AGGREGATE shall consist of clean, hard, sound crushed rock or washed gravel. It shall not contain more than 2 percent by weight of clay, shale, schist, alkali, or other deleterious substances. The grading of coarse aggregate shall range uniformly from coarse to fine.

STORAGE: Fine and coarse aggregate shall be stored and measured separately. Aggregate shall be stored on the job so that various sizes do not become intermixed. They shall be protected from contamination with dust, dirt, or other foreign materials.

MOISTURE CONTENT of aggregate shall be such that no visible separation of moisture and aggregate will take place during transportation from the proportioning plant to the point of mixing. Aggregate containing excess moisture shall be stockpiled prior to use and sufficiently dried.

VARIATIONS in moisture content shall not exceed one percent of the weight of the aggregate in a saturated surface dry condition. Variations in specific gravity of any group of sizes shall not exceed one percent. Variations in grading of separate groups of sizes of aggregate shall not exceed 5 percent. Variations exceeding these maximums shall constitute cause for delaying the use of the materials until batch weights and mixing water can be adjusted.

AGGREGATE SIZE: The primary size of aggregate specified and used on any project shall be the maximum consistent with the dimensions and form of the section being placed, the location and spacing of the reinforcing bars, and with the method of compaction, but shall not be less than 3/4-inch.

WATER shall be clean and free of oil, acid, alkali, organic matter or other deleterious substances.

REINFORCING STEEL:

BARS shall be of intermediate grade steel and shall conform to ASTM Specification A615. All bars shall be deformed and deformations shall conform to ASTM Specification A615.

WELDED WIRE FABRIC OR MESH shall conform to ASTM Specification A185.

ADMIXTURES shall be used only where specifically required or where written approval has been granted by the Engineer. Concrete for curbs, gutters and sidewalks shall contain 0.5 pound of lampblack per cubic yard.

EXPANSION JOINT FILLER shall be of the preformed nonextruding type and shall conform to ASTM Specification D544, Type V, bituminous fiber, and shall be the full depth of the abutting concrete.

C. WORKMANSHIP

REINFORCING STEEL:

PLACEMENT: Unless an exception is made in writing by the Engineer, the Contractor shall submit for approval detailed drawings showing bending and placing of all reinforcing steel and shall not begin work until the drawings have been approved by the Engineer.

Steel reinforcement shall be accurately placed and positively secured and supported by concrete blocks, metal chairs, spacers, or by metal hangers. The clear spacing between parallel bars shall not be less than 1.50 times the nominal diameter for round bars, but in no case shall the clear distance be less than 1.50 inches nor less than 1.33 times the maximum size aggregate. Reinforcing steel shall be in position before concreting is begun.

Steel shall not be bent nor straightened in a manner that will injure the materials. Kinked bars shall not be used. Heating of steel for bending shall not be permitted.

All steel dowels must be placed and securely anchored before concrete is poured.

Reinforcing shall not be placed in slabs and beams until after the concrete in the walls and columns has been placed, unless specifically indicated on drawings.

SPLICING: In slabs, beams, and girders, splices at the points of maximum stress shall be avoided. Bars in horizontal members shall have a maximum lap at splices sufficient to develop the strength of the bars. Wherever possible, splices of adjacent bars shall be staggered. Unless stress governs, the splice of wire fabric shall be at least one mesh wide. Spliced bars in walls may be either separated or wired together. Deformed bars shall be lapped 24 bar diameters.

CLEANING REINFORCEMENT: Steel shall be cleaned of any oil, grease, rust, concrete or other deleterious substances before it is placed in the forms. Any deleterious substances that get on the steel after placing shall be removed before pouring concrete.

CONCRETE PROPORTIONING AND MIXING:

PROPORTIONS: Amounts of cement and water and strength requirements shall be as follows:

(1) Class of Concrete	Class A	Class B	Class C
(2) Minimum Cement per cubic yard concrete	6 Sks.	5 Sks.	4.2 Sks.
(3) Maximum total water per sack of cement including free moisture	54 Lbs.	62 Lbs.	
(4) Minimum compressive strength at 28 days	3000 psi	2500 psi	2000 psi

The class of concrete used shall be specified on the drawings. However, if no class is shown, Class A concrete shall be used.

Concrete to be used for curbs, gutters and sidewalks shall contain 0.5 pound of lampblack per cubic yard of concrete.

Cement shall be measured in the sack or weighed; broken sacks will not be allowed unless cement is batched by weight. Aggregate shall be proportioned by weight.

Proportions of fine and coarse aggregate shall be furnished by the Engineer or by an approved testing laboratory, and may be varied from time to time by the Engineer to produce a smooth, dense, workable mixture that will work readily into corners and angles without excessive spading or vibrating.

AMOUNT OF WATER AND SLUMP TEST: The amount of water required for the proper consistency of concrete shall be determined by means of the slump test, made in accordance with ASTM Method C143.

The amount of water given in the above table is a maximum. The maximum allowable slump shall be as follows:

(1) Thin sections and columns	Not more than 5"
(2) Heavy sections, footings & slabs	Not more than 3"
(3) Concrete placed under water	Not more than 8" Not less than 6"

The amount of water may be varied in accordance with the dampness of the materials and the requirements of the workability of the aggregate within the limits of the slump tests given above.

MEASURING WATER: The equipment for measuring and supplying the water to the mixer shall be so constructed and arranged that the amount of water to be added to the mixture can be measured positively and that the predetermined quantity of water required can be discharged rapidly in one operation into the mixing drum. The equipment shall be designed so that water from the source of supply cannot enter the measuring tank while the water is being discharged from the measuring tank into the mixer. Tanks or other equipment for measuring and discharging water into the mixer shall be sufficiently accurate that the amount of water delivered to the mixer for any batch shall not vary more than one percent from the required quantity of water for any position of the mixer. The tanks or other equipment shall be arranged to permit checking the amount of water delivered by discharging into measured containers.

JOB MIXING: The capacity of the mixer shall be adequate to handle one or more full sack batches. No split sack batches will be permitted, unless all materials are weighed. At no time shall the mixer be loaded beyond its capacity. The capacity of the mixer shall be considered to be the rated capacity as given in the manufacturer's catalog, provided that a quantity equal to the rated capacity can be thoroughly mixed in the prescribed time period and that there is no loss of ingredients during the mixing. Each batch shall be mixed not less than 1.50 minutes after all ingredients are in the mixer and until the mixture is uniform and homogeneous. It shall be completely discharged. The peripheral speed of concrete mixing drums shall be approximately 200 feet per minute. The mixer shall be equipped with an automatic time lock on the discharge control arranged to start the time cycle on the stroke of the material skip or on the closing of the hopper gate.

TRANSIT MIXING: Transit-mixed concrete shall be in accordance with ASTM C94 and be of not less than 10 minutes at a peripheral drum speed of approximately 200 feet per minute. Mixing shall be continued until discharge is complete. At least three minutes of the mixing period shall be at the job site. The transit mixer shall be equipped with water measuring devices consisting of either accurately calibrated water tanks or water meters. Transit-mixed concrete will be rejected if not placed within 1.50 hours after water is first added to the batch.

Should the Contractor elect to utilize transit mixing equipment he shall make advance arrangements to prevent delays in delivery and placing of the concrete. An interval of more than 45 minutes between any two consecutive batches or loads, or a delivery and placing rate of less than 8 cubic yards of concrete per hour, shall constitute cause for shutting down the work for the remainder of the day, and if so ordered by the Engineer, the Contractor shall make, at his own expense, a construction joint at the location and of the type directed by the Engineer in the concrete already placed.

FORMS shall conform to the shape, lines and dimensions called for on the Plans and shall be substantial and mortar tight. All vertical surfaces shall be formed, except where specifically authorized to the contrary. Temporary openings at the bottom of the wall forms and temporary openings at the base of all columns and piers shall be provided as required for cleaning and to facilitate inspection.

Drip beads, feature grooves and other concrete details shall be carefully formed with surfaced material which shall be thoroughly coated with oil or other approved products before concrete is poured. Method of forming shall be selected for ease of stripping without damage to details. All exterior corners shall be chamfered 3/4-inch unless otherwise specifically shown.

Bolts or form clamps shall be of sufficient strength and number to prevent spreading of forms. They shall be of a type which can be entirely removed or cut back one inch below the finished surface of the concrete. All forms for outside surfaces shall be constructed with stiff wales at right angles to the studs and all form clamps shall extend through and fasten to such wales. Forms shall be so constructed that side forms where surface finishing is required can be removed without disturbing supporting forms.

Where woodwork comes into contact with concrete, proper anchors shall be provided. End studs of frame walls shall be bolted and dovetailed nailing blocks shall be provided for trim and other woodwork. Anchors in jambs of openings shall be spaced not more than two feet on centers.

Anchor bolts shall be positively positioned and anchored in the forms with templates and checked by the Engineer before concrete is poured.

If there is any question regarding the strength of forms, the recommendations of the manufacturer of the form ties shall be followed.

Non-supporting forms may be removed in 48 hours and supporting forms in not less than 21 days unless approval for earlier removal is granted by the Engineer. Forms shall be carefully removed so as not to endanger the structure or damage the surface.

CONCRETE CONVEYING AND DEPOSITING: Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent segregation or loss of material. Concrete shall not be deposited in a manner which shows segregation to occur, and shall be deposited as nearly as practicable in its final position to avoid segregation during rehandling.

No concrete which has partially hardened or been contaminated by foreign material shall be deposited on the work, nor shall retempered concrete be used. When concreting is started it shall be carried on as a continuous operation until the section is completed, maintaining the top surface level.

All concrete shall be compacted with mechanical vibrators in a manner satisfactory to the Engineer. At least two satisfactory vibrators shall be on the job during every pour and more if required by the Engineer. If it is deemed necessary by the Engineer, surfaces that are to be exposed shall be spaded and hammered to obtain a good surface. Concrete shall not be permitted to fall from a height greater than 6 feet without the use of adjustable length pipes or "elephant trunks." The use of chutes in conveying and depositing concrete will be allowed only at the discretion of the Engineer, and wherever they are used, they shall be laid at an inclination that will permit the flow of concrete of the required consistency. Where necessary to prevent separation, chutes shall be provided with baffle boards or a reversed section at the outlets. Columns shall be poured through pipes of adjustable length and not less than 6 inches in

diameter. The use of additional water in mixing the concrete to promote free flow in chutes of low inclination will not be allowed.

For columns and walls, concrete shall be allowed to set at least 4 hours before caps, girders, floor slabs, or other connecting members are poured so that the column may obtain its shrinkage before the superstructure is placed.

Where it is necessary to deposit concrete under water, concrete shall be placed by use of a tremie tube. Care shall be exercised to see that the lower end of the tremie tube does not rise above the surface of the concrete during the pour, to avoid contamination with water. Depositing of concrete under water shall be permitted only with the approval of the Engineer, where it is not possible to de-water.

COLD WEATHER WORK: Concrete shall not be mixed nor placed while the atmospheric temperature is at or below 35° Fahrenheit unless means are employed to heat the aggregate and water, and satisfactory provisions have been made for protecting the work. All concrete shall be effectively protected from frost action for a period of five days after placing and will not be accepted before the expiration of a thirty day period during which the temperature of the concrete does not fall below 40° Fahrenheit.

The concrete shall be maintained at a temperature of at least 50° Fahrenheit for not less than 72 hours after placing or until it has thoroughly hardened.

The temperature of the concrete as it leaves the mixer shall not be less than 50° Fahrenheit, nor more than 120° Fahrenheit. Upon written notice from the Engineer, all concrete which may have become damaged by frost action shall be replaced by the Contractor at his own expense.

CONSTRUCTION JOINTS AND EXPANSION JOINTS: Construction joints in structural concrete shall be level or vertical and shall be of the type and location as the Engineer directs or as shown on the Plans. Joints not indicated on the Plans shall be so made and located as to least impair the strength of the structure and shall conform to the typical details.

The horizontal surface of all construction joints shall be cleaned and roughened by removing the entire surface and exposing clean aggregate solidly embedded in mortar matrix in accordance with the following procedure. The contact surface must be thoroughly cleaned by chipping or sand blasting the entire surface not earlier than 5 days after initial pour or by an approved method that will assure equal bond such as a thorough hose washing of the surface not less than 2 nor more than 4 hours after the concrete is placed (depending on setting time). All wash and chalklike material shall be entirely cleaned from the surface.

In the event that the contact surface becomes coated with earth, sawdust, etc., after being cleaned, the entire surface so coated shall be recleaned.

All construction joints shall be slushed with neat cement grout immediately ahead of the pour.

Water stops shall be installed in construction joints where shown on the Plans. Where no construction joint is shown on the Plans, but is permitted by the Engineer, water stops shall be installed as directed by the Engineer.

Unreinforced slabs, walks, curbs, etc., shall have construction joints at not to exceed 15-foot centers and expansion joints at not to exceed 30-foot centers. Reinforced slabs, walks, curbs, etc., shall have construction joints at not to exceed 20-foot centers and expansion joints at 40-foot centers. Expansion joint material shall be placed along all walls and around each column and projection.

CONCRETE FINISHING:

STRUCTURES: Forms shall be removed as soon as permissible and, immediately thereafter, tie rod holes, rock pockets, and other defects shall be chipped to expose sound aggregate and mortar and then shall be dashed with neat cement paste and dry packed with moistened 1 to 2 cement sand mortar thoroughly tamped in.

After patches have thoroughly hardened, surfaces that are to be exposed or painted in the finished structures shall be rubbed mechanically or by hand with carborundum stones to eliminate traces of forms and patch work. A brush coat of thin cement mortar consisting of one part cement and one part sand that will pass a No. 16 screen or at the option of the Engineer a neat cement wash shall be applied if necessary to give a uniform appearance. In either case, five percent calcium chloride shall be used. When the cement film has set sufficiently so that the sand particles and cement will not draw out of surface pin holes, but before final set has taken place, the entire surface shall be rubbed with fine carborundum stones (No. 25 to No. 30) until a smooth, even surface of even texture, color and appearance is obtained. No greater amount of mortar shall be applied in advance of rubbing than can be completely rubbed before final setting takes place. Immediately following the rubbing process, the finished surface shall be thoroughly washed with water.

SLABS, WALKS, STEPS, CURBS and GUTTERS: After concrete for slabs or sidewalks has been placed between the side forms, a strikeoff guided by the side forms shall be used to bring the surface to the proper section to be compacted. After screeding off, the surface shall be tamped with a heavy tamper consisting of a grid of metal bars until a layer of mortar not less than 3/8-inch thick has been brought to the surface.

The surface shall be rescreeded to a true surface, worked with a wood float as settling progresses and troweled with a steel trowel a sufficient number of times to produce a smooth, hard finish. After troweling, the surface shall be broomed if required. Care shall be taken to obtain a true surface on slabs, especially at walls and joints. Slab surfaces shall not vary more than 1/4-inch at any point from an 8-foot straight edge. The use of topping or dusting with dry cement and sand shall not be permitted unless it is desired to apply an integral color. No more slabs shall be poured in one day than can be finished to a satisfactory surface.

If colored slabs are called for in the Plans, the finish shall be as specified except that the coloring shall be applied in the finished process in strict accordance with the Manufacturer's directions.

Treads of steps and stairs shall be worked with a wood float to an even surface, troweled to a smooth surface with a steel trowel and given a light brush finish. Use of topping or dry cement and sand will not be permitted. Edges and corners shall be rounded and the tread shall be scored with not less than four grooves the length of all treads near the edge. Forms on risers

and other exposed vertical surfaces shall be removed not more than six hours after concrete has been placed. Risers and vertical surfaces shall be brushed with grout and troweled smooth or finished as directed by the Engineer.

Curbs and gutters shall be carefully constructed to the design lines and grades. The extremely flat grades necessary in the City of Live Oak requires particularly careful construction to maintain flowline and lip of gutter grades within 0.02-feet of design grades at all locations.

Curbs and gutters shall be screeded to true cross section and grade. The screed shall be operated parallel to the line of the curb. The surface shall then be worked with a wood float as setting progresses, troweled smooth and given a fine brush finish parallel to the line of the curb. Corners shall be rounded. The forms on the face of the curb shall be removed not more than 6 hours after concrete has been placed. The face shall be brushed with grout, troweled smooth and brushed to match the rest of the curb. The face of the finished curb shall be true and straight and the top surface of the curb and gutter shall be of uniform height and free from irregularities. Tops of curbs and lips of gutters shall be straight and uniform and shall not vary more than 1/8-inch from the edge of a 10-foot straight edge except at grade changes and curves.

The stringent alignment and grade control necessary for minimum grades requires extreme care in the use of extruding machines to construct curb and gutter, and control shall be carefully checked for alignment and grade immediately before pouring.

Any curb and gutter which fails to meet these alignment and grade requirements shall be removed and replaced at no cost to the City.

CURING: All concrete shall be protected from injury and shall be kept continuously wet for a period of ten days after pouring. The use of curing compounds will not be permitted without the approval of the Engineer.

Concrete slabs and walks shall be covered with "Sisal-Kraft" paper, sand, or sawdust as soon as they are hard enough to walk on and shall be kept continuously wet for ten days after pouring. Care shall be taken to prevent exposed slabs from becoming stained.

D. TESTS

During progress of the work, compression tests shall be made at the discretion of the Engineer of samples of the concrete using the molded cylinder method. Materials for the samples will be furnished at the expense of the Contractor. Testing will be done by the Owner or authorized laboratory at the expense of the Owner.

E. MEASUREMENT AND PAYMENT

No separate measurement of concrete work will be made. Payment for all work under this section shall be included in the payment made for the structure or item containing or constructed of the concrete.

A. SCOPE

This section consists of furnishing and installing concrete curb ramps with a detectable warning surface, driveways, and sidewalk at the locations and in conformance with the details shown on the Plans or as designated by the Engineer, and as specified in these Technical Specifications.

B. MATERIALS

ASPHALT CONCRETE shall conform to TS-8, "Hot Mix Asphalt", of these Technical Specifications.

AGGREGATE BASE shall conform to TS-6, "Aggregate Base", of these Technical Specifications.

CONCRETE shall conform to TS-9, "Concrete Work", of these Technical Specifications.

DETECTABLE WARNING SURFACE shall conform to the City of Live Oak Standard Details.

C. WORKMANSHIP

Where a curb ramp, driveway or sidewalk is constructed within existing curb and gutter or curb, gutter, and sidewalk, the existing concrete shall be removed to the nearest joint beyond the limits of the curb ramp, driveway or sidewalk, or as directed by the Engineer.

Concrete work shall conform to Section 9, "Concrete Work", of these Technical Specifications.

A detectable warning surface shall be installed on all curb ramps and shall extend the full width of the curb ramp or landing. Detectable warning surfaces shall not be cut, trimmed or modified, except as directed by the Engineer. Installation of the detectable warning surface shall be in accordance with the City of Live Oak Standard Details.

D. MEASUREMENT AND PAYMENT

Measurement of curb ramps will be made as a field count of each curb ramp installed. Curb ramp shall be inclusive of ramps, landings, and retaining curbs, exclusive of curb and gutter and sidewalk level landings.

Measurement of driveways will be made on square foot basis, measured along the face of curb line from top-of-wing to top-of-wing, multiplied by the nominal width, exclusive of curb and gutter.

Measurement of sidewalk will be made on a square foot basis, measured along the face of curb line or sidewalk centerline, multiplied by the nominal width, exclusive of curb and gutter.

Payment will be made at the unit prices provided in the bid, which shall include full compensation for furnishing all materials, including detectable warning surfaces, reinforcement, sand or aggregate base bedding, excavation, subgrade preparation, labor, tools, equipment, and incidentals, and for doing all the work involved in constructing curb ramps, driveways, and sidewalks, complete in place, as shown on the Plans, and as specified in these Technical Specifications, and as directed by the Engineer.

A. SCOPE

This section covers pipe and appurtenances for storm drains, complete.

B. MATERIALS

REINFORCED CONCRETE PIPE shall be integral bell and spigot pipe conforming to ASTM Specification C 76, Class III, "A" Wall design, with rubber gasket joints conforming to ASTM Specification C 443.

Fittings and accessories shall be as manufactured and furnished by the pipe supplier, or approved equal, and have bell and/or spigot configurations compatible with that of the pipe.

CORRUGATED HIGH DENSITY POLYETHYLENE PIPE shall be integral bell and spigot, smooth interior wall pipe conforming to ASTM Specifications F 405 and F 667, and Section 64 of the State Standard Specifications, with rubber gasket joints conforming to ASTM Specification F 477.

Fittings and accessories shall be as manufactured and furnished by the pipe supplier, or approved equal, and have bell and/or spigot configurations compatible with that of the pipe.

Minimum "pipe stiffness" at 5% deflection shall be in accordance with Section 64 of the State Standard Specifications for all sizes when tested in accordance with ASTM D 2412.

Maximum pipe deflection shall not exceed 5% of the nominal manufacturer's average inside pipe diameter, and shall be determined as specified in Subsection D of this specification entitled, "Pipe Deflection Testing".

DUCTILE IRON PIPE: Pipe shall be Class 50, minimum, ductile iron pipe conforming to AWWA Specification C151. Pipe shall be bell and spigot with "push-on" rubber gasket joints conforming to AWWA Specification C111, unless otherwise specified. Pipe shall be cement-mortar lined in conformance with AWWA Specification C104 and bituminous coated.

Fittings shall comply with AWWA Specification C110, and shall be cement-mortar lined and bituminous coated as specified above. Fittings shall be supplied with bell and/or spigot configurations compatible with that of the pipe.

C. WORKMANSHIP

PREPARATION OF THE TRENCH: The trench shall be prepared to receive the pipe as specified in Section 3, "Trench Excavation and Backfill", of these Technical Specifications. The excavation and preparation of the trench shall be completed a sufficient distance in advance of the pipe laying to prevent dislodged material from entering the pipe.

INSTALLATION OF THE PIPE: Before lowering into the trench, the pipe shall be inspected for defects, and all cracked or broken pipe shall be discarded. The ends and interior of the pipe shall be clean. Handling of the pipe shall be accomplished in a manner that will not damage the pipe.

At manholes, pipe shall be installed so that there is a joint at or not more than two feet from the manhole wall.

After lowering the pipe into the trench, the bell or coupling end and spigot shall be cleaned of any foreign matter and a suitable lubricant applied to the joint. The joint shall be made in the manner recommended by the manufacturer. Care shall be taken not to buckle or disturb previously laid pipe.

Each joint shall be inspected to insure that it is properly made before backfilling. Care shall be taken to prevent any dirt or foreign matter from entering the open end of the pipe. Where it is necessary to cut pipe, such cuts shall be neatly made. **The laid pipe shall be true to line and grade and, when complete, shall have a smooth and uniform invert, within ± 0.02 foot vertically and ± 0.05 foot horizontally of the Plan alignment and grade.**

BACKFILLING THE TRENCH: After the laid pipe has been inspected and approved by the Engineer, the trench shall be backfilled as required under Section 3, "Trench Excavation and Backfill", of these Technical Specifications.

CLEANING STORM DRAINS: The Contractor shall furnish an inflatable rubber ball of a size that will inflate to fit snugly into the pipe. The ball may, at the option of the Contractor, be used without a tag line; or a rope or cord may be fastened to the ball to enable the Contractor to know and control its position at all times. The ball shall be placed in the last inlet or manhole on the pipe to be cleaned, and water shall be introduced behind it. The ball shall pass through the pipe with only the force of the water impelling it. All debris flushed out ahead of the ball shall be removed at the first inlet or manhole where its presence is noted. In the event cemented or wedged debris, or a damaged pipe shall stop the ball, the Contractor shall remove the obstruction.

Final cleaning shall occur after permanent paving is applied and all manhole covers have been raised to grade.

D. PIPE DEFLECTION TESTING

If flexible pipe material is used, the pipe installation shall be tested for excessive deflection after all backfill and resurfacing materials have been placed and the line has been cleaned.

A mandrel having an outside diameter of 95% of the average manufactured internal diameter shall be pulled through the pipeline. If the mandrel does not pass freely through the pipe, the pipe shall be re-excavated, bedded and backfilled to adequately support the pipe and reduce the pipe deflection to 5% or less. The pipeline shall then be retested for deflection.

E. TELEVISION INSPECTION

After pipe deflection testing has been completed, storm drain pipes shall be cleaned and televised (at contractor's expense) before permanent paving is applied. Any deficiencies in materials or workmanship identified through this inspection shall be corrected and the failed pipes shall be retested for deflection and televised again.

F. MEASUREMENT AND PAYMENT

The length of storm drain pipe will be measured horizontally in feet, along the centerline of the pipe. Payment will be made at the unit prices provided in the bid and shall include full compensation for furnishing all materials, labor, tools, and equipment required to locate existing utilities, excavate and backfill trenches, install storm drain pipe and fittings, and all appurtenances required for a complete installation, including testing, ready to operate.



A. SCOPE

This section covers the construction of storm drain manholes and drainage inlets, complete.

Excavation and backfill at manholes and drainage inlets shall conform to the requirements of Section 3, "Trench Excavation and Backfill", of these Technical Specifications.

B. MATERIALS

CAST-IN-PLACE CONCRETE: All materials used in cast-in-place concrete shall be Class B concrete in accordance with the applicable portions of Sections 51 and 90 of the State Standard Specifications and Section 9, "Concrete Work", of these Technical Specifications.

PRECAST CONCRETE MANHOLE SECTIONS: All precast sections, including riser sections, cones, grade rings, and flat slab tops, shall conform to ASTM Specification C 478, and the dimensions shown on the Standard Details. Cones shall be eccentric. Grade rings shall be a standard product, manufactured particularly for use in manhole construction, sized to fit the cones on which they are to be placed, and the wall thickness shall not be less than that of the cones. Grade rings shall be not less than 2 inches, nor more than 6 inches high. All precast components shall have tongue and groove ends.

All manhole construction materials shall be approved in advance by the City Engineer. Precast manhole bases, including connection details, will require specific advance approval. Neoprene "boots" are not acceptable for connections to the manhole bases.

MANHOLE FRAMES AND COVERS: Principal dimensions shall be as shown on the Standard Details. Iron castings shall conform to ASTM Specification A 48, Class 30. Each cover shall have the words "STORM DRAIN" cast into the top with 2-inch high letters. Castings shall be of consistently high quality, and shall be free of material and manufacturing defects. Following cleanup and final machining, an asphaltic paint or similar protective coating shall be applied.

Covers shall have at least one blind pick hole or recessed lifting lug. Horizontal bearing surfaces shall be machined to smooth, plane surfaces providing for full contact between the frame and cover.

The minimum weight of the frame shall be 135 pounds.

HEAVY DUTY COVERS: Unless otherwise indicated on the Plans, covers shall be designed for heavy traffic duty and conform to the following minimum requirements:

Cover weight shall be not less than 130 pounds. Strength of the cover shall be verified by load tests. Load testing of covers shall be done by a recognized independent testing laboratory. The cover shall support a minimum load of 40,000 pounds applied at the center of the cover over a maximum bearing area of 50 square inches. During testing, the cover shall be supported in the same way as it would be under normal service conditions.

LIGHT DUTY COVERS: Light duty covers shall be bolt-down, pressure manhole type, and shall be used only where specifically called for on the Plans. Covers shall be fastened to the frame with a minimum of four stainless steel bolts and shall be gasketed for a watertight seal. Cover weight shall not be less than 125 pounds.

JOINT SEALING COMPOUND COMPONENTS shall be RAM-NEK primer and joint sealing compound, KENT-SEAL primer and joint sealant, or approved equal.

MANHOLE WATER STOPS shall be installed on PVC storm drain pipe with stainless steel bands to make a watertight seal between the pipe wall and the concrete manhole base.

PRECAST CONCRETE DRAINAGE INLETS: All precast sections, including drainage inlet boxes and tops, shall conform to ASTM Specification C 913, and the dimensions shown on the Standard Details. All precast components shall have tongue and groove ends.

DRAINAGE INLET FRAMES AND GRATES: Principal dimensions shall be as shown on the Standard Details. Frames for Type G0 drainage inlets shall be galvanized, welded structural steel conforming to ASTM Specifications A 36 or A 576, Grades 1021, 1022, 1026, 1029, or 1030. Frames shall be Type 24, as shown on Caltrans Standard Plan D77A.

Grates for Type G0 drainage inlets shall be bicycle proof, galvanized, welded structural steel conforming to ASTM Specifications A 36 or A 576, Grades 1021, 1022, 1026, 1029, or 1030. Grates shall be Type 24-12X, as shown on Caltrans Standard Plan D77B.

MORTAR shall be proportioned with one part portland cement to two parts clean, well-graded sand which will pass a 1/8-inch screen. Admixtures may be used not exceeding the following percentages of weight of cement: Hydrated lime, 10 percent; diatomaceous earth or other inert materials, 5 percent. Consistency of mortar shall be such that it will readily adhere to the surfaces. Mortar mixed for longer than 30 minutes shall not be used.

C. WORKMANSHIP

CAST-IN-PLACE CONCRETE: Concrete work shall conform to the Standard Details, the applicable portions of Sections 51 and 90 of the State Standard Specifications and Section 5, "Concrete Work", of these Technical Specifications.

GENERAL CONSTRUCTION: Manholes shall be constructed only when the temperature is above 32° Fahrenheit. All work shall be protected against freezing. Water shall be removed from the excavation and the excavation maintained "dry" during construction of the manhole and during the time required for the concrete or mortar to develop sufficient strength to resist rupture by groundwater pressure. All pipes connected to manholes shall have a joint within 2 feet of the manhole wall.

The subgrade for the manhole base shall be carefully prepared to provide a firm support for the manhole, and prevent future settlement of the manhole. Particular care shall be taken with deep manholes and manholes located in wet locations.

Manhole inverts shall be formed as shown on the Standard Details, either by laying pipe through and cutting out the top portion before completion of the base of the manhole, or by forming a "U" shaped channel in the concrete base slab. Cut edges of pipe laid through the manhole shall be fully covered by concrete when the manhole invert is complete. The finished invert shall be smooth and true to grade. No mortar or broken pieces of pipe shall be allowed to enter the pipe.

A groove shaped to match the tongue of the first precast concrete riser section of the manhole shall be formed in the base slab. A circular metal form suited to the particular precast manhole manufacturer's joint shall be used to form the groove.

Except as specified herein, all precast manhole sections shall be set in joint sealing compound. Joint sealing compound components shall be applied in the field. One brush coat of primer shall be applied to the tongue and groove surfaces to be sealed, then the preformed strip of sealing compound shall be pressed firmly to the dry, clean, primed joint surface (groove portion). Precast sections shall be set evenly in a full bed of sealing compound. After the precast sections have been placed, the interior joint surface shall be trimmed smooth with a trowel or sharp tool to remove any excess joint compound projecting into the manhole.

Grade rings may be set with mortar if necessary for adjustment of the final cover elevation. Mortar joints shall not be more than 3/4-inch thick. Excess mortar shall be trimmed flush. The outside of each mortar joint shall be sealed with an approved bituminous sealing compound.

MANHOLE LEAKAGE TESTING: All manholes shall be tested for leakage by filling with water. Leakage shall not be greater than 0.15 gallons per day per square foot of interior surface area. All visible leaks shall be repaired.

INSTALLATION OF FRAMES AND COVERS NOT IN ROADWAYS: Frames and covers shall be joined to the top of the manhole or structure so that the cover, when placed, will be at the proper elevation and so that no ground or surface water may enter the manhole or structure. The finish grade at the tops of manholes will be established after the excavation has been backfilled and compacted to true subgrade.

INSTALLATION OF FRAMES AND COVERS IN ROADWAYS: Roadways are defined as the paved part of all roads, driveways, and parking areas, public or private, and in addition, the unpaved shoulders of public roads. Concrete collars shall be installed around frames of manholes in roadways. Installation shall be as shown on the Standard Details.

After completion of the manhole, all plugs shall be completely removed from the pipes and all loose material shall be removed from the manhole.

PIPE STUBS for future connections shall be not more than 2 feet long and shall be plugged with standard gasketed plugs.

D. MEASUREMENT AND PAYMENT

Payment for connecting to existing storm drain manholes will be made at the unit price provided in the bid, and shall include full compensation for furnishing all materials, labor, tools and

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STORM DRAIN MANHOLES AND DRAINAGE INLETS

SECTION 12

equipment required to connect to existing storm drain manholes, including excavation, backfill, fittings, and all appurtenances required for a complete installation, ready to operate.

A. SCOPE

This section consists of adjusting existing frames and covers to grade.

Adjust covers of existing manholes, valve boxes or other facilities to grade in conformance with Section 15, "Existing Facilities," of the State Standard Specifications and these Technical Specifications.

B. MATERIALS

CONCRETE for collars shall conform to the requirements of Section 90-2, "Minor Concrete", of the State Standard Specification and Section 9, "Concrete Work", of these Technical Specifications. Concrete for collars placed within asphalt surfaces shall reach a minimum compressive strength of 1,250 psi within the same work shift as it is placed. Concrete for collars placed within asphalt surfaces shall contain lamp black at a rate of 10 pounds per cubic yard.

REINFORCING STEEL for collars shall conform to the requirements of Section 9, "Concrete Work", of these Technical Specifications.

HOT MIX ASPHALT (HMA) shall conform to the requirements of Section 8, "Hot Mix Asphalt", of these Technical Specifications.

C. WORKMANSHIP

Lower covers of existing facilities before cold planing, placing or replacing asphalt concrete surfacing. Temporarily fill utility depressions with HMA before opening the lane to public traffic.

After completion of paving activities, adjust covers of facilities within the asphalt concrete surface to grade as shown on the plans. Collars for manhole covers shall conform to City of Live Oak Standard Detail 504. Collars for valve covers shall conform to City of Live Oak Standard Detail 305.

Covers that have previously been paved over and not raised shall be located as accurately as possible by the Contractor prior to pavement removal. The edges of the facility shall be carefully exposed prior to removing pavement for the concrete collar.

The roadway shall be opened to traffic at the end of each work shift. The use of plates, barricades or other traffic control devices will not be allowed after work shift hours. Concrete collars shall achieve a minimum compressive strength of 1,250 psi before the roadway is opened to traffic.

D. MEASUREMENT AND PAYMENT

Measurement of Adjust Frame and Cover to Grade will be made as a field count of each frame and cover assembly adjusted as a single unit.

Payment will be made at the unit prices provided in the bid, which shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in adjusting frames and covers to grade, complete in place, including concrete and bar reinforcement, as shown on the plans, and as directed by the Engineer.

A. SCOPE

This section covers pipe and fittings for the water system, complete.

B. MATERIALS

Water pipe shall be polyvinyl-chloride (PVC), or ductile iron. All pipe shall be National Sanitation Foundation approved. All pipe and fittings shall conform to the following specifications:

POLYVINYL CHLORIDE (PVC) PIPE shall be SR (Schedule Rated) in accordance with ASTM D1785 for Schedule 40 and Schedule 80 pipe, and shall have a maximum SDR of 18 for "Class 150" applications and a maximum SDR of 14 for "Class 200" applications.

Pipe 4-inches and larger shall comply with AWWA Specification C900 and shall be of cast-iron-pipe-equivalent diameters. Pipe 3-inches and smaller in diameter shall have either rubber ring or solvent welded joints. Pipe 4-inches and larger in diameter shall have solid cross-section rubber ring joints in accordance with ASTM F477.

Fittings shall be PVC with the same pressure rating and hydrostatic test pressure as the pipe, or cast iron fittings with rubber gaskets sized for PVC pipe.

DUCTILE IRON PIPE: Pipe shall be Class 50 minimum ductile iron pipe conforming to AWWA Specification C151. Pipe shall be bell and spigot with "push-on" rubber gasket joints conforming to AWWA Specification C111, unless otherwise specified. Pipe shall be cement-mortar lined in conformance with AWWA Specification C104 and bituminous coated.

Fittings shall comply with AWWA Specification C110, and shall be cement-mortar lined and bituminous coated as specified above. Fittings shall be supplied with bell and/or spigot configurations compatible with that of the pipe.

MECHANICAL COUPLINGS, including flexible couplings and flanged coupling adaptors, shall be as manufactured by Smith-Blair, Baker, Dresser, or approved equal. All mechanical couplings shall have the longest standard sleeve length.

LOCATOR CONDUCTORS shall be No. 12 direct burial insulated solid copper wire. The locator shall be attached to the top of the pipeline centerline. Locators at valve boxes shall be installed in accordance with the Standard Details.

CONCRETE: Concrete for thrust blocks shall be Class C concrete and shall conform to the applicable portions of Sections 51 and 90 of the State Standard Specifications.

C. WORKMANSHIP

GENERAL: All materials shall be stored and handled in a manner that will not damage the material or its coating, and will keep the materials clean and free of contamination. Before installation, each article shall be inspected and any damaged or contaminated material shall be discarded. Any damaged coating shall be repaired. The interior and ends of the pipe and appurtenances shall be clean. When it is necessary to cut pipe, such cuts shall be neatly made.

LAYING: All pipe shall be laid on a smooth bed, prepared in accordance with the provisions specified in the section of these Specifications entitled, TRENCH EXCAVATION AND BACKFILL. As soon as possible after the installation of the pipe, sufficient backfill material shall be placed on the pipe to protect it from temperature changes. The ends of the pipeline shall be closed with watertight caps or plugs at all times, except when laying pipe. The Contractor shall take all necessary precautions to prevent contaminated water, oil, grease, dirt, rodents, or other contaminants from entering the pipeline.

JOINTS: Bell and spigot or mechanical joints shall be made up in accordance with the instructions of the manufacturer. Adjoining pipe sections shall be level and both bell and spigot shall be clean. The bell shall be lubricated and the rubber gasket properly installed. The spigot shall then be inserted and seated in correct position by use of a joint puller or other approved method. After seating, each joint shall be checked with a feeler gauge to ensure that the gasket is not twisted and that the spigot is seated to the proper depth. Any improper joints shall be taken apart and correctly made. The maximum installed deflection at joints shall not exceed that recommended by the manufacturer.

FITTINGS: Joints of bell and spigot or mechanical joint fittings shall be made up and sealed as specified for pipe joints. Joints of flanged fittings shall be made up true and square so that there is no strain on the pipe or fitting. Bolts shall be tightened uniformly around the joint.

ANCHORAGE: Concrete thrust blocks shall be provided in accordance with the Standard Details included in the Plans. Size of thrust blocks shall be approved by the Engineer. Concrete shall be carefully placed against the valve or fitting to avoid covering or obstructing bolts or connectors at the valve or fitting joints.

FLEXIBLE COUPLINGS: Flexible couplings shall be installed in accordance with the recommendations of the manufacturer. The finished joint shall be watertight under the test pressure of the pipeline. After completion of the connection, any exposed steel shall be painted with two coats of coal tar epoxy.

CONNECTIONS TO EXISTING SYSTEM: Where the new water main connects to existing valves or pipelines, new reducers, flanged coupling adaptors or transition couplings shall be installed to accommodate the new pipeline, as required.

SEWER LATERAL CROSSINGS: Crossings of sewer service laterals shall be made above the sewer lateral wherever possible. Depth of cover over the water main may be reduced to 30 inches where such reduction is necessary to allow crossing above sewer service laterals.

If it is necessary to cross below sewer service laterals, the water main shall be installed with at least 12 inches of vertical separation from the sewer lateral and no joints in the water main shall be placed within nine feet, horizontally, of the sewer service lateral.

D. HYDROSTATIC TESTS

All parts of the entire pipeline installation shall be tested at a pressure of 125 PSI. Tests shall be made in the presence of the Engineer or his representative.

Before the test, the pipeline shall be sufficiently anchored to withstand the test pressure. During the filling of the line with water, precautions shall be taken to prevent air pockets at high points. Water may be allowed to stand in the line for several hours prior to the test. During the test, which shall be conducted for the time period determined by the Engineer, but not less than 30 minutes, the leakage shall not exceed 5 gallons per 24 hours per thousand feet of pipe per inch of nominal diameter. Test sections shall be as short as valve configurations permit. If any valved section of pipe shows greater leakage than specified, the Contractor shall locate and repair the leaks and shall retest that section of line at no additional cost to the Owner.

The Contractor shall provide all labor, tools, and equipment required to perform the hydrostatic tests.

E. FLUSHING AND STERILIZATION OF COMPLETED MAINS

GENERAL: In general, the methods outlined in AWWA C601 entitled, "Disinfecting Water Mains," should be used as a guide in performing this operation where applicable.

FLUSHING COMPLETED LINES: Preliminary flushing of completed lines prior to chlorination shall be accomplished as thoroughly as possible with the water pressure and outlets available. The flushing shall be done after the pressure tests have been made.

CHLORINATION OF COMPLETED LINES: Before being placed in service, the entire line shall be chlorinated. Chlorine shall be applied by one of the following methods: Liquid chlorine, gas-water mixture, fed-chlorine gas, or calcium hypochlorite water mixture, unless another method (such as Chlorine "HTH" Tablets) is approved by the Engineer. The chlorinating agent shall be applied at the beginning of each section adjacent to the feeder connection and shall be injected through a corporation cock, hydrant, or other connection ensuring treatment of the entire line. Water shall be fed slowly into the line with chlorine applied in amounts to produce a dosage of 40-50 parts per million. Portions of the existing mains which have been connected to a new line or otherwise contaminated by construction shall be included in the system sterilized. A residual of not less than 10 parts per million after 24 hours shall be produced in all parts of the line. During the chlorination process, all valves shall be operated.

If disinfection by chlorine "HTH" tablets is permitted by the Engineer, the tablets shall be secured to the top of the pipe with an approved adhesive.

Following chlorination and prior to discharge, the water shall be dechlorinated such that a residual of not more than 0.02 parts per million (instantaneous maximum) of chlorine is present in any water discharged.

FINAL FLUSHING: After chlorination, the water shall be flushed from the lines at the extremities until the replacement water tests are equal, chemically and bacteriologically, to those of the permanent water supply.

F. MEASUREMENT AND PAYMENT

No measurement of water pipe will be made. Payment will be made at the unit prices provided in the bid and shall include full compensation for furnishing all materials, labor, tools, and equipment required to locate existing utilities, excavate and backfill trenches, install water pipe and fittings, thrust blocks, and all appurtenances required for a complete installation, including flushing, sterilization and testing, ready to operate.

A. SCOPE

This section covers valves, fire hydrants and appurtenances for the water system, complete.

B. MATERIALS

All valves, fire hydrants and appurtenances shall, when applicable, conform to National Sanitation Foundation (NSF) and American Water Works Association (AWWA) standards and shall comply with ANSI/NSF Standard 61 Annex G for potable water. All valves, fire hydrants and appurtenances shall conform to the following specifications:

GATE VALVES shall be Resilient Wedge Gate Valves conforming to AWWA Specification C509. Valves shall be rated for a minimum working pressure of 150 psi, and shall have end fittings to conform to the pipe or fittings being connected. Valves shall be Mueller Series 2300, American Series 2500, Clow Model 2639, or approved equal. Valves shall open counter-clockwise and shall be furnished with two-inch square operating nuts when installed underground.

VALVE BOXES shall be provided for all valves placed underground and shall be similar and equal to Brooks Products, Inc., No. 3-RT or Christy G5, with 8-inch PVC pipe extension sleeve; cover to be marked "WATER".

FIRE HYDRANTS shall be the wet barrel type conforming to AWWA Specification C503 and the following requirements:

Outlets shall be threaded National Standard and shall be equipped with protective screw-caps, attached to the hydrant barrel with security chains. Outlets shall be individually valved, and operating valve parts shall be brass or bronze, with O-ring seals. The hydrants shall have a National Standard 1-inch (1½-inch Flat to Point) pentagon operating nut turning counter-clockwise to open.

RESIDENTIAL HYDRANTS shall have two 2½-inch hose nozzles and one 4½-inch pumper nozzle and shall be Clow Model 960, or approved equal.

COMMERCIAL HYDRANTS shall have two 4½-inch pumper nozzles and one 2½-inch hose nozzle and shall be Clow Model 2065, or approved equal.

BREAK-OFF CHECK VALVES shall be Clow Model LBI400, or approved equal.

C. WORKMANSHIP

GENERAL: All valves and appurtenances shall be thoroughly cleaned before installation and shall be installed in strict accordance with the manufacturer's recommendations.

SETTING VALVES AND APPURTENANCES: Valves shall be set plumb and inspected in opened and closed positions to insure that all parts are in working condition. All underground

valves shall be provided with valve boxes or vaults. Valve boxes in the street shall be anchored in accordance with the Standard Details.

SETTING FIRE HYDRANTS: Fire hydrants shall be set in accordance with the Standard Details. The hydrant bury shall be 6-inch diameter heavy cast iron pipe with a machined flange top and a flange or mechanical joint bottom connection. A 6-inch x 6-inch flanged break-off riser, with a break-off groove shall be installed below the hydrant. A 6-inch diameter break-off check valve shall be installed below the break-off riser. A 6-inch x 6-inch flanged spool shall be installed below the break-off check valve. Hydrants shall be painted one coat red primer and two finish coats of yellow paint. Each hydrant location shall be marked by a blue reflective pavement marker 6" from street centerline on the side nearest the fire hydrant.

D. MEASUREMENT AND PAYMENT

Measurement of fire hydrants will be based upon the number of each installed.

Payment for fire hydrants will be made at the unit prices provided in the bid, which shall include full compensation for furnishing all materials, labor, tools and equipment required to install the tee, water main, valves, valve boxes, fire hydrant assemblies, thrust blocks, fittings, and all appurtenances required for a complete installation, ready to operate.

A. SCOPE

This section consists of providing a traffic control system.

B. MATERIALS

CONSTRUCTION AREA TRAFFIC CONTROL DEVICES: Flagging, signs, and temporary traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Temporary Traffic Control," of the Standard Specifications, the Standard Plans and the 2014 Edition of the California Manual on Uniform Traffic Control Devices.

PORTABLE CHANGEABLE MESSAGE SIGNS shall comply with Section 12-3.32 "Portable Changeable Message Signs," of the Standard Specifications.

C. WORKMANSHIP

TRAFFIC CONTROL PLAN: The Contractor shall submit a traffic control plan conforming to the requirements of Part 7 of the 2014 Edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD), which shall be approved by the Engineer prior to beginning work.

MAINTAINING TRAFFIC: Maintaining traffic shall conform to the provisions in Sections 7-1.03, "Public Convenience," Section 7-1.04, "Public Safety," and Section 12, "Temporary Traffic Control," of the Standard Specifications and this Technical Specification.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, within a single traffic control system.

Closures shall conform to the provisions in "Traffic Control System for Lane Closure" of this Technical Specification.

Work that interferes with public traffic shall be limited to the hours when lane closures are allowed, except for work required under Sections 7-1.03, "Public Convenience," and Section 7-1.04, "Public Safety."

The full width of the traveled way shall be open for use by public traffic for Designated Legal Holidays.

Designated Legal Holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Local authorities shall be notified at least 5 business days before work begins. The Contractor shall cooperate with local authorities to handle traffic through the work area and shall make arrangements to keep the work area clear of parked vehicles.

No work on local streets is allowed between 12:00 a.m. and 7:00 a.m. and between 6:00 p.m. and 12:00 a.m.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders including sections closed to public traffic.

When work vehicles or equipment are parked within 6 feet of a traffic lane to perform active construction, the shoulder area shall be closed with fluorescent orange traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. A minimum of 9 traffic cones or portable delineators shall be used for the taper. A W20-1 (ROAD WORK AHEAD) or W21-5b (RIGHT/LEFT SHOULDER CLOSED AHEAD) or C24(CA) (SHOULDER WORK AHEAD) sign shall be mounted on a crashworthy portable sign support with flags. The sign shall be placed where designated by the Engineer. The sign shall be a minimum of 48" x 48" in size. The Contractor shall immediately restore to the original position and location a traffic cone or delineator that is displaced or overturned, during the progress of work.

If minor deviations from the lane requirement charts are required, a written request shall be submitted to the Engineer at least 15 days before the proposed date of the closure. The Engineer may approve the deviations if there is no significant increase in the cost to the State and if the work can be expedited and better serve the public traffic.

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE: A traffic control system shall consist of closing traffic lanes in conformance with the provisions in Section 12, "Temporary Traffic Control," of the Standard Specifications, the Standard Plans, the CAMUTCD and this Technical Specification.

The provisions in this section will not relieve the Contractor of responsibility for providing additional devices or taking measures as may be necessary to comply with the provisions in Section 7-1.04, "Public Safety," of the Standard Specifications.

During traffic stripe operations and pavement marker placement operations using bituminous adhesive, traffic shall be controlled, at the option of the Contractor, with either stationary or moving lane closures. During other operations, traffic shall be controlled with stationary lane closures.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

STATIONARY LANE CLOSURE: When lane closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations, designated by the Engineer within the limits of the highway right of way.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing the components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing the components when operated within a stationary type lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on the vehicles which are doing the placing, maintaining and removing of components of a traffic control system and shall be in place before a lane closure requiring the sign's use is completed.

PORTABLE CHANGEABLE MESSAGE SIGNS: Portable Changeable Message Signs shall be deployed on State Route 99 and Pennington Road to advise approaching drivers of the construction work on Pennington Road. Approaching drivers must be able to read the entire message for all phases at least twice at the posted speed limit before passing portable changeable message sign. You may use more than 1 portable changeable message sign to meet this requirement.

Only display the message shown on the plans or ordered by the Engineer or specified in this Technical Specification.

The text of the message displayed on portable changeable message sign must not scroll, or travel horizontally or vertically across the face of the message panel.

Continuously repeat the entire message in no more than 2 phases of at least 3 seconds per phase.

If useable shoulder area is at least 15 feet wide, the displayed message on portable changeable message sign must be minimum 18-inch character height. If useable shoulder area is less than 15 feet wide, you may use a smaller message panel with minimum 12-inch character height to prevent encroachment in the traveled way.

Start displaying a road closed message on portable changeable message signs 5 days before closing each railroad crossing indicating the name of the road to be closed, the date of the closure and the times that the closure will begin and end.

Place portable changeable message sign in advance of the first warning sign for:

1. Each stationary lane closure

Place portable changeable message sign as far from the traveled way as practicable where it is legible to traffic and does not encroach on the traveled way. Place portable changeable sign before or at the crest of vertical roadway curvature where it is visible to approaching traffic. Avoid placing portable changeable message sign within or immediately after horizontal roadway curvature. Where possible, place portable changeable message sign behind guardrail or temporary railing (Type K).

Except where placed behind guardrail or temporary railing (Type K) use traffic control for shoulder closure to delineate portable changeable message sign.

Remove portable changeable message sign when not in use.

Contractor shall obtain an encroachment permit from Caltrans prior to placing portable changeable message signs within the State Route 99 right-of-way.

TEMPORARY PAVEMENT DELINEATION: Temporary pavement delineation shall be furnished, placed, maintained, and removed in conformance with the provisions in Section 12-6 of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the CAMUTCD or as relieving the Contractor from the responsibilities specified in Section 7-1.04, "Public Safety," of the Standard Specifications.

When the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place before opening the traveled way to public traffic. Lane line or centerline pavement delineation shall be provided for traveled ways open to public traffic.

Work necessary, including required lines or markers, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive application of paint or removable traffic tape temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation, or as determined by the Engineer.

Temporary pavement markers and removable traffic tape that conflicts with a new traffic pattern or that is applied to the final layer of surfacing or existing pavement to remain in place shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

Temporary pavement delineation shall be used on or adjacent to lanes open to public traffic for a maximum of 14 days. Before the end of the 14 days, the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, additional temporary pavement delineation shall be provided by the Contractor at no additional cost to the Department. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

Painted traffic stripe used for temporary delineation shall conform to Section 84-2.03C(3), "Painted Traffic Stripes and Pavement Markings," of the Standard Specifications, except for payment. The number of coats shall be, at the option of the Contractor, either one or 2 coats. The quantity of painted traffic stripe used for temporary delineation will not be included in the quantities of paint traffic stripe to be paid for.

TEMPORARY LANELINE AND CENTERLINE DELINEATION: When lanelines or centerlines are obliterated, the minimum laneline and centerline delineation to be provided shall be temporary pavement markers placed at longitudinal intervals of not more than 24 feet. The temporary pavement markers shall be the same color as the laneline or centerline the markers replace. Temporary pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (6 months or less) in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Temporary pavement markers shall be placed in conformance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place pavement markers in areas where removal of the markers will be required.

Temporary laneline or centerline delineation consisting entirely of temporary pavement markers shall be placed on longitudinal intervals of not more than 24 feet.

Full compensation for furnishing, placing, maintaining, and removing temporary pavement markers used for temporary laneline and centerline delineation and for providing equivalent patterns of permanent traffic lines for these areas when required shall be considered as included in the contract prices paid for the items of work that obliterated the laneline and centerline pavement delineation and no separate payment will be made therefor.

Full compensation for furnishing, placing, and maintaining temporary painted laneline and centerline pavement delineation shall be considered as included in the contract prices paid for the items of work that obliterated the laneline and centerline pavement delineation and no separate payment will be made therefor.

E. MEASUREMENT AND PAYMENT

Traffic Control System will be paid on a lump sum basis and no measurement of quantities will be made.

Payment for traffic control system will be made at the lump sum price provided in the bid, which shall include full compensation for furnishing all materials, labor, tools, equipment, and incidentals and for doing all the work necessary to provide the traffic control system, including the costs associated with obtaining a Caltrans encroachment permit, as specified in these specifications, and as directed by the Engineer.



A. SCOPE

This section consists of applying thermoplastic traffic stripes, pavement markings, and pavement markers at the locations and in conformance with the plans or as designated by the Engineer. All work shall conform to Section 82 and Section 84 of the State Standard Specifications unless otherwise stated within these specifications.

B. MATERIALS

TRAFFIC STRIPES AND PAVEMENT MARKINGS shall be thermoplastic material that is free of lead and chromium conforming to Section 84 of the State Standard Specifications.

GLASS BEADS shall conform to Section 84 of the State Standard Specifications.

PAVEMENT MARKERS shall conform to Section 82 of the State Standard Specifications.

C. WORKMANSHIP

Retroreflectivity of the thermoplastic traffic stripes and pavement markings shall conform to the requirements in ASTM Designation D6359-99.

Thermoplastic traffic stripes and pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

D. CERTIFICATES OF COMPLIANCE

The California Department of Transportation maintains a list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The Contractor shall work with the manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials and furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-2.03C, "Certificates of Compliance," of the State Standard Specifications for each type of traffic product supplied.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the State Standard Specifications.

E. MEASUREMENT AND PAYMENT

Measurement of Thermoplastic Traffic Striping will be made by the lineal foot, as determined by measuring the length of striping with a surveyor's tape or wheel. A double thermoplastic traffic stripe consisting of two 4-inch-wide yellow stripes is measured as two traffic stripes.

Measurement of Thermoplastic Pavement Markings will be made by the square foot, as determined by measuring the area of the marking.

Measurement of Pavement Markers will be made as a field count of each pavement marker that is installed per section 82 of the State Standard Specifications.

Payment will be made at the unit prices provided in the bid, which shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and applying primer coat, and in furnishing, heating, mixing and applying thermoplastic striping, as well as all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing traffic stripes, pavement markings and markers as shown on the plans, as specified in these specifications, and as directed by the engineer.

A. SCOPE

This section covers the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), all reports and documentation, and performing all inspections, sampling and testing as required by the State Water Resources Control Board and the Construction General Permit, complete.

B. GENERAL**DEFINITIONS**

SWRCB - State Water Resources Control Board

CASQA - California Stormwater Quality Association

SWPPP - Storm Water Pollution Prevention Plan

SMARTS - Storm Water Multiple Application and Report Tracking System

QSD - Qualified Storm Water Pollution Prevention Plan Developer

QSP - Qualified Storm Water Pollution Prevention Plan Practitioner

BMPs - Best Management Practices

NOI - Notice of Intent

NOT - Notice of Termination

CGP - Construction General Permit (Latest Edition)

SWPPP shall be prepared by a certified QSD.

INSPECTIONS shall be conducted by a certified QSD or QSP as required by the CGP.

TESTING AND SAMPLING shall be performed by a certified QSD or QSP. All testing and sampling results shall be reported to the SMARTS website per the CGP requirements. The City shall be notified when non-passing test results have been reported, and provided with a copy of the results.

REPORTING: The Contractor is responsible for filing a NOI, preparation and submittal of all monitoring and annual reports, completion of post construction calculations on SMARTS, and filing a NOT per the requirements of the CGP.

C. SUBMITTALS

QSD and QSP: The Contractor shall submit the names and certifications of their appointed QSD and QSP individuals to the City.

SWPPP: The Contractor is responsible for the preparation and submittal of a SWPPP according to the guidelines and requirements of the State Water Resources Control Board Construction General Permit. The SWPPP and WPCDs shall include, but not be limited to, BMP fact sheets and Water Pollution Control Drawings that illustrate the construction site limits, roadways, stormwater discharge points from the site, proposed directions of surface flow, construction entrances, staging areas, stockpile locations, portable toilet locations, proposed solid waste management locations, proposed hazardous waste management locations, proposed tire wash locations, proposed concrete washout locations, proposed sawcut locations, and the placement of BMPs. WPCDs shall include staging and storage areas not adjacent to, or near the project site. A copy of the SWPPP must be kept onsite at all times for the duration of the project. A copy of the SWPPP shall also be provided to the City. The City is not responsible for providing any sampling, testing, inspections, reporting, or approval of the SWPPP.

D. MEASUREMENT AND PAYMENT

Water pollution control will be paid on a lump sum basis and no measurement will be made.

Payment for water pollution control will be made at the lump sum unit price provided in the bid, which shall include full compensation for all fees, inspections, testing, sampling, preparation of reports and WPCDs, filing the NOI and NOT, completing post construction calculations, furnishing all materials, labor, tools, equipment, and incidentals, and for doing all the work involved in water pollution control, completely, including installation, maintenance and removal of water pollution control items upon project completion, and as specified in these Technical Specifications.

A. SCOPE

This section consists of furnishing and installing sign panels, sign posts, fastening hardware, back braces, straps and saddle brackets at the locations shown on the plans or as designated by the Engineer. All work shall conform to Section 82 of the State Standard Specifications unless otherwise stated within these specifications.

B. MATERIALS

SINGLE SHEET ALUMINUM SIGN shall be fabricated from sheet aluminum alloy 6061-T6 or 5052-H38 and shall not have a vertical splice in the sheet aluminum. Aluminum sheeting must be free of buckles, warps, dents, cockles, burrs and defects resulting from fabrication and installation. All single sheet aluminum signs shall conform to Section 82-2.02E of the State Standard Specifications.

RETROREFLECTIVE SHEETING shall be Type XI microprismatic, or approved equal. Retroreflectivity of the sheeting for sign background and legend shall conform to the requirements in ASTM Designation D 4956. Retroreflective sheeting must have Class 1, 3, or 4 adhesive backing and shall be applied to sign panels as recommended by the retroreflective sheeting manufacturer without stretching, tearing, and damage. The orientation of the legend must comply with the retroreflective sheeting manufacturer's instructions. The retroreflective sheeting must be a single, contiguous sheet without splices except for the splices produced during the manufacturing process of the retroreflective sheeting. The adhesive backing shall be pressure sensitive and fungus resistant.

METAL SIGN POSTS shall be 2" diameter galvanized post and conform to the City of Live Oak Standard Detail 601. Galvanizing shall conform to the provisions in Section 75-1.02B of the State Standard Specifications. Sign posts shall be free of buckles, warps, dents, cockles, burrs and defects resulting from fabrication and installation.

WOOD SIGN POSTS shall be 4" x 4" nominal size, No. 1 Douglas-Fir, free of heart center conforming to Section 82-3.02C of the State Standard Specifications.

SIGN PANEL FASTENING HARDWARE: Framing assemblies for multiple sign installations shall be fabricated of structural steel conforming to the requirements in ASTM A36/A36M, or of aluminum alloy as shown on the Plans. Frames fabricated of structural steel shall be hot-dip galvanized after fabrication.

Back braces for signs shall be commercial quality, mild steel, hot-dip galvanized after fabrication.

Straps and saddle brackets for mounting sign panels on electroliers, sign structure posts and traffic signal standards or where shown on the Plans shall be stainless steel conforming to the requirements in ASTM A 167, Type 302B. Theft-proof bolts shall be stainless steel with a chromium content of at least 17 percent and a nickel content of at least 8 percent.

Lag screws, bolts (except theft-proof bolts), metal washers and nuts shall be commercial quality steel, hot-dip galvanized after fabrication. Fiber washers shall be of commercial quality.

Galvanizing shall conform to the provisions in Section 75-1.02B of the State Standard Specifications.

Components of bolted assemblies shall be galvanized separately before assembly.

C. WORKMANSHIP

POSTS: Excavate post holes to the depth shown. Place posts in the holes. Backfill material for posts must be Class B concrete as provided in Section 9, "Concrete Work", of these Technical Specifications. Surplus excavated material shall be disposed of in a uniform manner within the project limits as directed by the Engineer. The line between the center of the top of a post and the center of a post at the ground line shall be plumb within a tolerance of not to exceed 0.02 foot in 10 feet.

SIGN PANELS: Sign information must be imprinted in 1/4-inch upper case letters and numerals. Locate this information on the back, lower right of each sign panel so that it will not be blocked by a sign post or mounting frame. Sign information must include:

1. Phrase "Property of the City of Live Oak"
2. Sign fabricator's name
3. Month and year of fabrication
4. Type of retroreflective sheeting
5. Sheeting manufacturer's identification and lot number for the retroreflective sheeting

Sign information must be imprinted at the fabrication plant by die-stamping on aluminum panels or by an equivalent method for fiberglass-reinforced plastic signs, such as affixing a die-stamped aluminum tag. The information must not be painted, screened, inked, or engraved. The information must be imprinted in a way that does not damage the face of the sign.

Sign panels shall be installed by the Contractor in conformance with the details on the Plans or as directed by the Engineer. Any chipping or bending of sign panels shall be considered as sufficient cause to require replacement of panels at the Contractor's expense.

All fastening hardware shall be furnished by the Contractor.

Signs shall be free from blemishes that may affect the serviceability and detract from the general sign color and appearance when viewing during daytime and nighttime from a distance of 25 feet. The face of each finished sign shall be uniform, flat, smooth, and free of defects, scratches, wrinkles, gel, hard spots, streaks, extrusion marks, and air bubbles. The front, back, and edges of the sign panels shall be free of router chatter marks, burns, sharp edges, loose rivets, delaminated skins, excessive adhesive over-spray and aluminum marks.

D. CERTIFICATES OF COMPLIANCE

The California Department of Transportation maintains a list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The Contractor shall work with the manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials and furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6- 2.03C, "Certificates of Compliance," of the State Standard Specifications for each type of traffic product supplied.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the State Standard Specifications.

E. MEASUREMENT AND PAYMENT

Measurement of Signs and Sign Posts will be made as a field count of each sign post with sign installed as a single unit per the City of Live Oak standards and these technical specifications.

Payment will be made at the unit prices provided in the bid, which shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing the signs, posts and mounting hardware as shown on the plans, as specified in these specifications, and as directed by the engineer.

