

CITY OF CAPITOLA

PROJECT SPECIFICATIONS

FOR

41ST AVENUE

ADAPTIVE TRAFFIC SIGNAL SYSTEM

For use in conjunction with the State of California, Department of Transportation Standard Specifications dated May 2010, and Standard Plans dated May 2010.

BIDS OPEN: 11:00 A.M., Wednesday, February 8, 2017



CITY OF CAPITOLA
420 Capitola Avenue
Capitola, CA 95010
(831) 475-7300 – Phone
(831) 479-8879 – Fax
www.cityofcapitola.org

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CITY OF CAPITOLA
SANTA CRUZ COUNTY, CALIFORNIA

NOTICE INVITING SEALED BIDS

41st Avenue Adaptive Traffic Signal System

NOTICE IS HEREBY GIVEN that sealed bids will be received by the Director of Public Works of the City of Capitola, California, on or before February 8, 2017 at the hour of 11:00 a.m. in his office at 420 Capitola Avenue, Capitola, California, 95010, for the following work and improvements in and for the City, at which time they will be publicly opened and read:

General work description: Install an adaptive traffic signal system along 41st Avenue between Clares Street and Brommer /Jade Street.

The estimated cost of construction is \$294,000

Each bid must be accompanied by a cashier's check, certified check, or Bidder's Bond executed by a corporate surety authorized to engage in such business in the State of California, payable to the City of Capitola, in an amount not less than ten percent (10%) of the amount of the bid. The successful bidder will be required to furnish a Performance Bond in an amount equal to one hundred percent (100%) of the contract price, a Labor and Material Bond in an amount equal to one hundred percent (100%) of the contract price, and a Defective Materials and Workmanship Bond in an amount equal to ten (10%) percent of the contract price. Said bonds shall also be executed by a corporate surety authorized to engage in such business in the State of California and be made payable to the City of Capitola.

General requirements, plans, specifications and bid forms may be obtained at the office of the Director of Public Works, City Hall, 420 Capitola Avenue, Capitola, California 95010 or by calling (831) 475-7300 or on the City's website at www.cityofcapitola.org

The sealed bids must be addressed to the City of Capitola and must be submitted in a single sealed envelope endorsed: "**41st Avenue Adaptive Traffic Signal System**"

If the successful bidder fails, neglects, or refuses for ten (10) calendar days after the award of the contract to enter into the contract to perform the work, the cashier's check, certified check, or Bidder's Bond accompanying the bid and the amount therein named, shall be declared forfeited to the City and shall be collected by it and paid into its general fund. After the bids have been opened, no bidder will be allowed to withdraw its bid without forfeiting the bid guaranty, unless permitted to do so by the Director of Public Works.

The Contractor shall possess a current Class A and/or C-12 and/or C-8 License at the time of award of the contract.

The City Council reserves the right to reject any or all bids, waive any irregularities in any bids and its determination as to which bid is the lowest responsible bid and is for the best interest of the City shall be final. The City Council shall have fifteen (15) calendar days from and after the opening of the bids within which to make its determination.

The Contractor receiving the award of the contract shall begin work within fifteen (15) calendar days after receipt of the Notice to Proceed and shall diligently prosecute the same to completion within thirty (30) working days.

The City of Capitola, in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the regulations of the Department of Commerce (15 C.F.R., Part 8), issued pursuant to such Act, hereby

notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color, sex or national origin.

Prevailing Rate of Wages: In accordance with the provisions of the California Labor Code, the City Council hereby determines that the general prevailing per diem rate of wages in the locality in which the work is to be performed, for laborers and for each craft or type of worker and mechanic employed in the execution of the contract, is the Union Wage Scale established for Santa Cruz County, which wage scale as of the execution date of this contract is incorporated herein as if fully set forth. Overtime shall be not less than one and one-half (1-1/2) times the established rates. Sundays and holidays shall be not less than two (2) times the established rates. In payment of labor, the Contractor shall comply with the provisions of the Labor Code of the State of California, Sections 1770 to 1781 inclusive (Article 2, Chapter 1, Part 7, Division 2), and any acts amendatory thereto.

Department of Industrial Relations:

- No contractor or subcontractor may be listed on a bid proposal for a public works project 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)].
- No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.
- This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

For any moneys earned by the Contractor and withheld by the City to ensure the performance of the contract, the Contractor may, at Contractor's request and expense, substitute securities equivalent to the amount withheld in the form and manner and subject to the conditions provided in Chapter 13 (commencing with Section 4590), Division 5, Title 1 of the Government Code of the State of California.

Dated: _____

Steven E. Jesberg
Public Works Director

DO NOT REMOVE FROM SPECIFICATION PACKET

CITY OF CAPITOLA
SANTA CRUZ COUNTY, CALIFORNIA

BID PROPOSAL

41st Avenue Adaptive Traffic Signal System

The undersigned, as bidder, declares that all the contract documents herein contained have been thoroughly examined, that this bid proposal is made without collusion with any other person, firm or corporation and that all laws and ordinances relating to the interest of public officers in this contract have been complied with in every respect.

Bidder proposes and agrees, if this bid proposal is accepted, that Bidder will contract with the City of Capitola, Santa Cruz County, California, in the form of the copy of the agreement herein contained, to provide all necessary machinery, tools, apparatus and other means of construction; to furnish all materials, to provide all labor, and to construct the improvements in conformity with the specifications and drawings and other contract provisions herein contained or reasonably implied thereby or as necessary to complete the work in the manner and within the time named herein and according to the requirements and to the reasonable satisfaction of the Director of Public Works; to pay all charges of freight transportation and hauling and all applicable taxes; to indemnify the City against any loss or damage arising from any act of the undersigned as Contractors; and that Bidder will take in full payment therefore an amount computed by the Director of Public Works and based upon the unit prices as set forth in this bid proposal.

It is understood that the quantities set forth herein are approximate only and are for the purpose of comparing bids.

The amount to be paid the Contractor shall be the amount of work in each item actually constructed, multiplied by the unit prices set forth as follows:

Contractor's Name:

Item No.	Item Description	Units	Unit Price	Quantity	Total
	Traffic Control	LS	\$ _____	1	\$ _____
	Mobilization	LS	\$ _____	1	\$ _____
	Utility Potholing	EA	\$ _____	12	\$ _____
	Furnish and Install Adaptive Traffic Signal System	LS	\$ _____	1	\$ _____
	Furnish and Install Category 5E Cable	LF	\$ _____	1700	\$ _____
	Furnish and Install No. 14 AWG Conductors	LF	\$ _____	1700	\$ _____
	Furnish and Install Ethernet Extender Device	EA	\$ _____	4	\$ _____
	Furnish and Install Camera Mounting Hardware	EA	\$ _____	16	\$ _____
	Furnish and Install 3" Schedule 80 PVC Conduit	LF	\$ _____	350	\$ _____

	Furnish and Install Caltrans No. 5 Pull Box	EA	\$ _____	6	\$ _____
	Furnish and Install GPS Clock	EA	\$ _____	4	\$ _____
	Furnish and Install Wireless Modem	EA	\$ _____	1	\$ _____
	Establish Cellular (4G) Wireless Connection	LS	\$ _____	1	\$ _____
	Minor Concrete	LS	\$ _____	450	\$ _____
TOTAL					\$ _____
					Dollars
and					Cents

The City will award the contract to the lowest responsible bidder complying with the instructions in the Notice Inviting Sealed Bids. The lowest bidder will be determined on the basis of the total of the Base Bid items alone. In the event that the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern and the corrected product of the unit price and the estimated quantity shall be deemed to be the amount bid. If the sum of two or more item totals in the bid schedule does not equal the total amount bid, the individual item totals shall govern and the corrected sum shall be deemed to be the amount bid.

The undersigned agrees, if this bid proposal is accepted by the City Council and if a contract for the performance of the work is entered into by and between the City of Capitola and the undersigned, to plan the work and prosecute it with such diligence that all of the work shall be completed within thirty (30) calendar days after receipt of the Notice to Proceed.

The undersigned further agrees that if this bid proposal is accepted, to sign the agreement and to furnish the required bonds with satisfactory surety or sureties within ten (10) calendar days after the award of the contract and if the undersigned fails to contract as aforesaid, it shall be understood that the contract has been abandoned and therefore that this bid proposal and the bid guaranty shall be forfeited to and become the property of the City. Otherwise, the bid guaranty accompanying this bid shall be returned to the undersigned.

Dated this _____ day of _____, 20_____.

Signature of Bidder

Bidder's Address

Printed Name of Bidder

City, State, Zip Code

Email Address:

Telephone No.

REQUIRED CONTRACTOR INFORMATION

NOTICE: In the case of a corporation, give below the address of the principal office thereof and the names and addresses of the president, secretary, treasurer and manager:

Tax ID No. or Social Security No _____

Contractor's License No. _____ Classification(s) _____

Expiration date: _____

Classification of workers used on job:

Acknowledgement of Addendum(s): Receipt of the following addendum(s) issued during the time of bidding is acknowledged and the information contained therein has been considered in the preparation of this bid proposal.

Note: Failure to execute the following may be considered as an irregularity in the bid proposal.

Addendum No. (None ___), (1 ___), (2 ___), (3 ___), (4 ___), (5 ___)
Check appropriate space(s).

I certify under penalty of perjury that the representations made herein are true and correct to the best of my knowledge.

Signature of Bidder

Printed Name of Bidder

LIST OF PROPOSED SUBCONTRACTORS

List the name and address of each subcontractor who will perform work or labor or render service to the Contractor on the project in an amount in excess of one half of one percent (1/2%) of the total bid, or, if it exceeds \$10,000.00, whichever is greater, and the portion of the work to be done by each subcontractor.

Work to be Performed	License Number and type	% Of Total Contract	Subcontractor's Name Address & Telephone	Classification of Workers used on job
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Note: Attach additional sheets if required.

General Contractor shall perform a minimum of 30% of the contract work.

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER

State of California)
City of Capitola) ss.
County of Santa Cruz)

_____, being first duly sworn, deposes and says that he
(Bidder's Name)

or she is _____ of _____
(Title) (Company)

the party making the foregoing bid, 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 its 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.

(Signature of Bidder)

(NOTE: Signatures for those executing for the Non-collusion Affidavit must be properly acknowledged.)

BIDDER'S BOND

KNOW ALL MEN BY THESE PRESENTS,

THAT WE, _____

as SURETY, are held and firmly bound unto the CITY OF CAPITOLA, State of California, hereinafter called the CITY, in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above-named, submitted by said Principal to the City, for the work described below for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the surety exceed the sum of _____

_____ (\$ _____) DOLLARS.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above-mentioned bid to the City for certain construction specifically described as follows for which bids are to be opened at Capitola, California, on Wednesday February 8th, 2017, for:

41st Avenue Adaptive Traffic Signal System

NOW, THEREFORE, if the aforesaid Principal is awarded the contract, and within the time and manner required under the specifications after the prescribed forms are presented to him for signature enters into a written contract in the prescribed form, in accordance with the bid, and files two bonds: one to guarantee faithful performance, and one to guarantee payment for labor and materials, as required by law; then this obligation shall be null and void; or should the aforementioned contract be awarded to other than the herein-named Principal, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

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

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 20____.

PRINCIPAL: _____(Seal)
_____(Seal)
_____(Seal)

SURETY: _____(Seal)
_____(Seal)
_____(Seal)

ADDRESS

TELEPHONE NUMBER

(Note: Signatures of those executing for the Surety must be properly acknowledged.)

CITY OF CAPITOLA
SANTA CRUZ COUNTY, CALIFORNIA

AGREEMENT
41st Avenue Adaptive Traffic Signal System

THIS AGREEMENT, made this _____ day of _____, 201____, by and between the City of Capitola, a Municipal Corporation, in Santa Cruz County, California, hereinafter called the City, and _____ hereinafter called the Contractor.

WITNESSETH:

WHEREAS, the City has caused to be prepared in accordance with law, specifications, plans and other contract documents, for the work herein described and shown and has approved and adopted these contract documents, specifications and plans and has caused to be published in the manner and for the time required by law, a Notice Inviting Sealed Bids for doing the work in accordance with the terms of this contract, and

WHEREAS, the Contractor in response to said notice has submitted to the City a sealed bid proposal accompanied by a bid guaranty in an amount not less than ten percent (10%) of the amount bid for the construction of all of the proposed work in accordance with the terms of this contract, and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined and canvassed the bids submitted and as a result has determined and declared the Contractor to be the lowest responsible bidder and has duly awarded to the Contractor a contract for all of the work and for the sum or sums named in the bid and in this agreement.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

ARTICLE I. WORK TO BE DONE:

That the Contractor shall provide all necessary labor, machinery, tools, apparatus and other means of construction; shall furnish all materials, superintendence and overhead expenses of whatever nature necessary to construct all of the improvements for the City of Capitola in conformity with the specifications and plans and other contract documents and according to such instructions as may be given by the City of Capitola Director of Public Works or its authorized agent.

ARTICLE II. CONTRACT PRICES:

Except as provided in Section IV B of the Specifications ("Changes and Extra Work"), the City shall pay the Contractor according to the unit prices stated in the bid submitted by the Contractor or the total amount of the contract, whichever is less, which shall include all applicable taxes, for complete performance of the work.

The Contractor hereby agrees to accept such payment as full compensation for all materials and appliances necessary to complete the work; for all loss or damage arising from the work or from action of the elements, or from any unforeseen obstruction or difficulties which may be encountered in the prosecution of the work; incurred in and in consequence of the suspension or discontinuance of the work; as hereby specified; for all liability and other insurance; for all fees or royalties or other expenses on account of any patent or patents; for all overhead and other expenses incident to the work and expected profits; and for well and faithfully performing and completing the work within thirty (30) calendar days from the date of the Notice to Proceed; all according to the contract plans and specifications, the details and instructions, and the requirements of the City Council.

ARTICLE III. PARTS OF THE CONTRACT:

That the complete contract document consists of the following:

- | | |
|----------------------------------|----------------------------|
| 1. Notice Inviting Sealed Bids | 2. Hold Harmless Clause |
| 3. Bid Proposal | 4. Performance Bond |
| 5. Non-collusion Affidavit | 6. Labor and Material Bond |
| 7. Bidder's Bond or Bid Guaranty | 8. Specifications |
| 9. Agreement | 10. Insurance Certificates |

In case of any conflict between this Agreement and any other part of the contract, this Agreement shall be binding.

IN WITNESS WHEREOF, the City has caused its corporate name to be hereunto subscribed and its corporate seal to be hereunto affixed by its City Manager and its City Clerk thereunto duly authorized and the Contractor has executed these presents the day and year herein above written.

This Agreement shall be effective at such time as each party is in possession of a copy (i.e. either an original or facsimile) executed by the other party.

SO AGREED,

CITY OF CAPITOLA
A Municipal Corporation

CONTRACTOR:

License No. _____

Tax ID or SSN _____

By:

By:

Benjamin Goldstein
City Manager

Title: _____

Date: _____

Date: _____

Awarded by the City Council on

By signing above on behalf of the corporation, the individual so signing warrants that he/she has authority to sign this agreement on behalf of the corporation and legally bind the company to all of the obligations contained therein.

ATTEST:

City Clerk

HOLD HARMLESS CLAUSE

WHEREAS, _____, (Contractor), has been awarded a contract with the City of Capitola to perform certain work described as follows:

General work description: Install an adaptive traffic signal system along 41st Avenue between Clares Street and Brommer /Jade Street.

Contractor hereby agrees to indemnify, defend and hold harmless the City, its officers, agents and employees from any and all demands, claims or liabilities of any nature caused by or arising out of Contractor's negligent acts, errors, or omissions, or willful misconduct, or conduct for which the law imposes strict liability on Contractor in the performance or nonperformance of this agreement.

Dated _____, 20_____.

Contractor

By _____

Title _____

Address _____

Telephone _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____(Contractor)

of _____
(Address of Contractor)

a _____, hereinafter called Principal, and
(Corporation/Partnership/Individual)

_____ (Surety)

of _____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto CITY OF CAPITOLA, 420 Capitola Avenue, Capitola, CA 95010, hereinafter called OWNER, in the penal sum of _____ DOLLARS (\$_____) (100% of contract amount), in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain contract with the Owner, dated the ____ day of _____, 20____, a copy of which is hereto attached and made part hereof for the construction of 41st Avenue Adaptive Traffic Signal System.

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

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

PROVIDED, FURTHER, that the said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the specifications accompanying the same shall in any ways affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this ___ day of _____, 20_____.

ATTEST:

Principal/Secretary

Principal (type)

By: _____

Address: _____

Telephone No. _____

SEAL:

Witness as to Principal

Surety (type)

By: _____

Address: _____

Telephone No. _____

ATTEST:

Surety/Secretary

Attorney-in-fact (type)

By: _____

Address: _____

Telephone No. _____

SEAL:

Witness as to Surety

By: _____

Address: _____

Telephone No. _____

NOTE: Date of Bond must not be prior to date of Contract.
If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must be admitted sureties in possession of a valid current certification to that effect issued by the Commissioner of Insurance. (See Insurance Code Section 706.5.)

BOND FOR SECURITY OF LABOR AND MATERIALS

WHEREAS, The City Council of the City of Capitola, 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 Insert Project Name, is hereby referred to and made a part hereof; and

WHEREAS, under the terms of said agreement, principal is required before entering upon the performance of the work, to file a good and sufficient payment bond with the City of Capitola, 420 Capitola Avenue, Capitola, CA 95010, to secure the claims to which reference is made in Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code of the State of California.

Now, therefore, said principal and the undersigned as corporate surety, are held firmly bound unto the City of Capitola and all contractors, subcontractors, laborers, material men and other persons employed in the performance of the aforesaid agreement and referred to in the aforesaid Code of Civil Procedure 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 such work or labor, that said surety will pay the same in an amount not exceeding the amount herein above 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 such 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 insure to the benefit of any and all persons, companies and corporations entitled to file claims under Title 15 (commencing with Section 3082) of Part 4 of Division 3 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 said agreement or the specifications accompanying the same shall in any 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____.

IN WITNESS WHEREOF, this instrument is executed in four (4) counter-parts, each one of which shall be deemed an original, this _____ day of _____, 20_____.

ATTEST:

Principal/Secretary

Principal (type)

By: _____

Address: _____

Telephone No. _____

SEAL:

Witness as to Principal

Surety (type)

By: _____

Address: _____

Telephone No. _____

ATTEST:

Surety/Secretary

Attorney-in-fact (type)

By: _____

Address: _____

Telephone No. _____

SEAL:

Witness as to Surety

By: _____

Address: _____

Telephone No. _____

NOTE: Date of Bond must not be prior to date of Contract.
If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must be admitted sureties in possession of a valid current certification to that effect issued by the Commissioner of Insurance. (See Insurance Code Section 706.5.)

**ESCROW AGREEMENT TO SUBSTITUTE
SECURITIES FOR WITHHOLD MONEYS IN
PUBLIC CONTRACTS (OPTIONAL)**

THIS AGREEMENT, made this _____ day of _____, 20____, by and between the City of Capitola, hereafter called "City", and

_____ hereafter called "Contractor", having its main office at

WHEREAS, Contractor has been awarded a contract by City for

and has executed a contract dated _____, 20____ with City under which contract the Contractor is obligated to construct the above project and for which City shall pay Contractor certain progress payments from which moneys will be withheld as retention to insure performance of the contract by Contractor; and

WHEREAS, Contractor elects to substitute, at Contractor's expense, certain securities as eligible under Section 16430 of the Government Code or bank or savings and loan certificates of deposit equivalent to the amount withheld from progress payments.

NOW, THEREFORE, the parties agree as follows:

1. City shall hold in escrow the sum of _____ Dollars for the account of Contractor as represented by securities identified below:

(Cash Rec. No. _____ dated _____)

2. Contractor shall be the beneficial owner of any securities held by City substituted for moneys withheld and Contractor shall receive any interest thereon.

3. City will not pay out or release any escrow funds or securities except as provided in this agreement.

4. In the event Contractor or Contractor's agents fail to perform each and every obligation of its contract with City in the manner and within the time set forth in the contract for the project, the entire amount of escrow funds or securities held in escrow shall become the property of City upon certification from the Director of Public Works that Contractor has failed to perform its contract with City and Contractor has been given thirty (30) days written notice of its default under the contract. The escrow funds and securities which become the property of City shall be used and retained by City for the purpose set forth in the contract regarding withholding and retention of funds from progress payments, and such provisions are incorporated herein as if fully set forth.

5. Upon satisfaction in full and the time expiration set forth in the contract regarding withholding and retention of funds from progress payments, the amount held in escrow or securities held by City for the benefit of Contractor shall be released to Contractor by City upon certification of the Director of Public Works that Contractor has fully performed all obligations under the contract with City.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the day and year first above written.

CITY OF CAPITOLA:

By _____

CONTRACTOR:

By _____

Title _____

Address _____

Telephone _____

APPROVED AS TO FORM:

City Attorney

SPECIAL PROVISIONS

The following special provisions shall add to or modify the General Provisions of the State of California, Department of Transportation, Standard Specifications, dated May 2006 as amended.

SECTION I. DEFINITIONS AND TERMS

Whenever the following terms or pronouns in place of them are used in these specifications or in any documents or instruments where these specifications govern, the intent and meaning shall be interpreted as follows:

- A. ADDENDUM. Written or graphic instrument issued prior to the opening of bid proposals which interprets, corrects, or changes the bidding or contract documents. The term "addendum" shall include bulletins and all other types of written notices issued to potential bidders prior to opening bid proposals.
- B. CITY. The City of Capitola, located in Santa Cruz County, California; also sometimes referred to as the "City."
- C. ENGINEER OR CITY ENGINEER. The City Engineer of the City of Capitola or the Director of Public Works, acting either directly or through properly authorized agents.
- D. BIDDER. Any individual, firm, or corporation submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.
- E. CONTRACTOR. The person or persons, co-partnership, or corporation who have entered into a contract with the City for performance of work covered by this contract, and its authorized agents or legal representatives.
- F. INSPECTOR. Shall mean the technical inspector or inspectors duly authorized or appointed by the Engineer.
- G. PLANS. The word "plans" shall denote drawings. The word "drawings" shall denote plans. Plans and/or drawings are a part of the specifications.
- H. SPECIFICATIONS. The directions, provisions and requirements contained herein and supplemented by such special provisions as may be necessary, pertaining to the method and manner of performing the work, or to the quantities and qualities of materials to be furnished under the contract.
- I. PROPOSAL FORM. The approved form on which the City Engineer requires formal bids to be prepared and submitted for the work.
- J. BID PROPOSAL. The offer of the bidder for the work when made out and submitted on the prescribed proposal form, properly signed and guaranteed.
- K. CONTRACT, AGREEMENT, OR CONTRACT DOCUMENTS. The written agreement covering the performance of the work and the furnishing of labor, materials, tools, and equipment in the construction of the work. The contract shall include the notice to contractors, proposal, plans, specifications, special provisions, and contract bonds; also any and all supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.
- L. WORK. All the work specified in the special provisions, proposal and contract.

- M. INSTALL. Where the word install is used, it shall also mean that the Contractor shall provide all of the materials necessary to install the item as shown on the plans or in these specifications, unless stated otherwise.
- N. CONSTRUCT. Where the word construct is used, it shall also mean that the Contractor shall provide all of the materials necessary to construct the item as shown on the plans or in these specifications, unless stated otherwise.
- O. PLACE. Where the word place is used, it shall also mean to provide all of the materials for the complete installation of the item denoted.
- P. ADVERTISEMENT. The published Notice Inviting Sealed Bids for the construction of the project.
- Q. STANDARD SPECIFICATIONS. The State of California, Department of Transportation, Standard Specifications, dated May 2006 as amended, also referred to as the State Specifications.
- R. STANDARD PLANS. The State of California, Department of Transportation, Standard Plans, dated May 2010 as amended, also referred to as the State Standard Plans.
- S. STATE. The State of California, including the Department of Transportation (Caltrans), California Highway Patrol, or any other State of California agency whose action or oversight is related to the work.

SECTION II. BID REQUIREMENTS AND CONDITIONS

The bidder's attention is directed to the provisions of Section 2 of the State Specifications for the requirements and conditions which must be observed in the preparation of the bid proposal forms and the submission of the bid and these special provisions.

- A. CONTENTS OF BID PROPOSAL FORMS. Prospective bidders will be furnished with forms which will state the location and description of the contemplated work to be performed, for which a bid is asked.
- B. EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND SITE OF WORK. The bidder shall examine carefully the site of the work contemplated and the plans, specifications and proposal and contract forms thereof. It will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character and quality of work to be performed and as to the materials to be furnished, as to the requirements of these specifications, the special provisions and the contract.

For convenience in designation on the plans or in the specifications, certain materials or articles to be incorporated in the work may be designated under a trade name or the name of a manufacturer and the manufacturer's catalog information. The request for substitution of a similar or equivalent material or article shall not be made before the submission of a bid proposal and/or award of the contract. Attention is directed to the provisions under "Submittals," of Section VI elsewhere in the special provisions.

If any person contemplating submitting a bid proposal for proposed contract is in doubt as to the true meaning of or finds discrepancies in or omissions from any part of the plans, specifications, or other contract documents, the person may submit to the City a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the contract documents will be made only by addendum duly issued and a copy of such addendum will be delivered to each person receiving a copy of the contract documents. No person is authorized to make any oral interpretation or correction of any provision in the contract documents to any bidder, and no bidder shall rely on any such oral interpretation or correction.

- C. BID PROPOSAL FORMS. **All bids shall be made upon the blank forms provided herein, which shall be void if detached from these specifications.** All items shall be properly filled out. Numbers shall be stated in figures. The signatures of all persons signing shall be in long hand. If the bid is submitted by an individual, the individual's name and post office address must be shown. If submitted by a firm or partnership, the name and post office address of each member of the firm or partnership must be shown. If submitted by a corporation, the bid proposal shall show the name of the State under the laws of which the corporation was chartered and the names, titles and business addresses of the president, secretary, treasurer and manager.
- D. REJECTION OF BIDS CONTAINING ALTERATIONS, ERASURES OR IRREGULARITIES. Bids may be rejected if they show any alteration of form, additions not called for, conditional bids, incomplete bids, erasures, or irregularities of any kind.
- E. BID GUARANTEE. All bids shall be presented under sealed cover and shall be accompanied by a cashier's check, certified check or Bidder's Bond made payable to the City of Capitola, for an amount equal to at least TEN PERCENT (10%) of the amount of said bid.
- F. WITHDRAWAL OF BIDS. Any bid may be withdrawn by the bidder prior to but not after the time fixed for the opening of bids, provided that a request in writing for the withdrawal of such bid, executed by the bidder or bidder's duly authorized representative, is filed with the Director of Public

Works of the City of Capitola. The withdrawal of a bid shall not prejudice the right of a bidder to file a new bid.

- G. DISQUALIFICATIONS OF BIDDERS. More than one bid from an individual, a firm or partnership, a corporation or an association under the same or different names will not be considered. Reasonable grounds for believing that any bidder is interested in more than one bid for the work contemplated will cause the rejection of all bids in which said bidder is interested.
- H. COMPETENCY OF BIDDERS. With each and every bid and forming a part thereof, the City Council will require the bidder to furnish a statement of bidder's financial responsibility, technical ability, and experience.

SECTION III. AWARD AND EXECUTION OF CONTRACT

The bidder's attention is directed to the provisions in Section 3 of the State Specifications for the requirements and conditions concerning award and execution of contract and these special provisions.

- A. AWARD OF CONTRACT OR REJECTION OF BIDS. All bids shall be subject to the approval of the City Council, which reserves unto itself the right to accept or reject any or all bids and waive any irregularities or informalities of bids as it may deem for the best interest of the City, and whose determination as to whose bid is the lowest responsible bid shall be final and conclusive. The award, if made, will be made within fifteen (15) calendar days after the opening of the bids. City shall not be bound until the contract has been fully executed.
- B. RETURN OF BID GUARANTEES. Within thirty (30) calendar days after the award of the contract, the City will return the bid guarantees accompanying the bids, which are not being considered in making the award. All other bid guarantees will be held until the contract has been finally executed, after which they will be returned to the respective bidders whose bids they accompany.
- C. CONTRACT BONDS. The successful bidder simultaneously with the execution of the agreement will be required to furnish, on forms provided herein:
1. PERFORMANCE BOND in the amount equal to one hundred percent (100%) of the contract price, and must be by a corporate surety authorized to engage in such business in California, payable to the City of Capitola.
 2. LABOR AND MATERIAL BOND in an amount equal to one hundred percent (100%) of the contract price, and must be by a corporate surety authorized to engage in such business in California, payable to the City of Capitola.
 3. DEFECTIVE MATERIALS AND WORKMANSHIP BOND in an amount equal to ten (10%) of the contract price, and must be by a corporate surety authorized to engage in such business in California, payable to the City of Capitola and valid for a one (1) year period commencing on the date of contract completion.

This bond shall be provided to the City prior to release of the ten (10%) project retention.

- D. EXECUTION OF CONTRACT. The contract shall be signed by the successful bidder and returned, together with the contract bonds and insurance certificates, within ten (10) calendar days after the award of the contract. If bidder fails to do so, the City Council without further proceedings may declare the bid guarantee forfeited.
- E. PENALTY FOR FAILURE TO SIGN CONTRACT. A successful bidder who fails, neglects or refuses to sign the contract and file acceptable bonds as required, within the time specified, shall have the bid guarantee forfeited to the City as liquidated damages.
- F. SUBSTITUTION OF SECURITIES FOR WITHHELD AMOUNTS. For any moneys earned by the Contractor and withheld by the City to ensure the performance of the contract, the Contractor may, at Contractor's request and expense, substitute securities equivalent to the amount withheld in the form and manner and subject to the conditions provided in Chapter 13 (commencing with Section 4590), Division 5, Title 1 of the Government Code of the State of California. This substitution shall be effected prior to submittal of Contractor's first progress billing to the City for work under this contract.
- G. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES. Attention is directed to the provisions of Section 8-1.03, "Beginning of Work," Section 8-1.06, "Time of

Completion," and Section 8-1.07, "Liquidated Damages," of the State Specifications and these special provisions.

The counting of calendar days shall commence upon on upon the date stated in the "Notice to Proceed." The Contractor shall begin work within fifteen (15) calendar days after receiving the Notice to Proceed and shall diligently prosecute the same to completion before the expiration of thirty (30) calendar days from the date of the Notice to Proceed.

The Contractor shall pay to the City of Capitola the sum of \$800.00 (Eight Hundred Dollars and Zero Cents) per day for each and every calendar day's delay in finishing the work in excess of the number of calendar days prescribed herein.

SECTION IV. SCOPE OF WORK

- A. WORK TO BE DONE. The work to be done on this project consists, in general, of the following:

Install an adaptive traffic signal system along 41st Avenue between Clares Street and Brommer /Jade Street.

- B. CHANGES AND EXTRA WORK. Changes and extra work, if found necessary, shall be done in accordance with the provisions of Section 4-1.05, "Changes and Extra Work", of the Standard Specifications and these special provisions.

The City may require changes in, additions to or deductions from, the work to be performed or the materials to be furnished under this Contract pursuant to the provisions of the Contract Documents.

No change to the work shall be made, extra work performed, or deduction from the work made unless in pursuance of a written change order from the City, signed by the Director of Public Works or its authorized representative, stating that the change, addition, deletion, or any combination thereof is authorized. Written field orders may be issued to the contractor pending the issuance of a formal change order. No claim for additional payment shall be considered unless so ordered.

Adjustments to the contract amount by reason of a duly authorized change order shall be determined on the basis of one of the following methods, at the option of the Director of Public Works:

1. On the basis of an acceptable lump sum proposal from the Contractor in response to a quotation request.
2. On the basis of unit prices specified in the Contractor's proposal.
3. On the basis of actual necessary cost plus fifteen (15) percent to cover superintendence, general expense and profit, hereinafter referred to as "Force Account Work."

Force Account Work, if ordered, shall be adjusted and certified daily on record sheets acceptable to the Director of Public Works and signed by both he and the Contractor. Such daily report sheets shall thereafter be considered as the true record of Force Account Work done. Computation of actual costs shall include wages paid for workers and any employer payment made to, or on behalf of, workers for health, welfare, pension, vacation plans or similar purposes. Equipment costs shall be on the basis of generally accepted rental schedules for the locality. Material costs shall be supported by supplier's invoices.

When a lump sum proposal for extra work is requested from the Contractor, such quotation request shall be furnished by the Contractor, and a quotation for the work involved delivered to the Director of Public Works within five (5) calendar days. If the Director of Public Works finds said proposal unacceptable, he may then proceed with such extra work by Force Account or such other means as are available under the provisions of the contract.

- C. INTERPRETATION OF SPECIFICATIONS AND DRAWINGS. The specifications and the contract drawings are intended to be explanatory of each other. Any work indicated in the contract drawings and not in the specifications, or vice versa, is to be executed as if indicated in both. Should it appear that the work to be done, or any of the matters relative thereto, are not sufficiently detailed or explained in these contract documents, including the contract drawings, the Contractor shall apply to the Engineer for such further explanations as may be necessary, and shall conform thereto as part of this contract, so far as may be consistent with the terms of this contract. In the event of any doubt or question arising respecting the true meaning of the specifications, reference shall be made to the City and its decision thereon shall be final.

- D. FIGURED DIMENSIONS. All work shown on the contract drawings, the dimensions of which are not figured, shall be accurately followed to the scale to which the drawings are made, but figured dimensions where given are in all cases to be followed, though they may differ from scaled measurements. Large scale and full size drawings shall be followed in preference to small scale drawings.
- E. ERRORS OR DISCREPANCIES. If the Contractor, in the course of the work, discovers any discrepancies between the drawings and the conditions of the ground, or any errors or omissions in the drawings or in the layout given by stakes, points or instructions, it shall be Contractor's duty to inform the Engineer immediately in writing and the Engineer shall promptly verify the same. Any work done after such discovery until authorized will be done at the Contractor's risk.
- F. DRAWINGS TO BE FURNISHED BY CONTRACTOR. The bidder's attention is directed to the provisions in Section 5-1.23, "Submittals" of the State Specifications for the requirements concerning submittals. As soon as practicable and proper after the execution of this contract, the Contractor shall supply such working drawings or devices to be furnished hereunder as are called for herein or as are required by the Engineer, to make clear the details of construction and of devices and to demonstrate fully that all materials and equipment comply with the intent and provisions of this contract. Unless otherwise herein specified, such drawings shall be submitted to the Engineer for this approval upon Engineer's request. Should any drawings furnished by the Contractor not be approved by the Engineer, the Contractor shall make the revisions required and again submit them to the Engineer for approval. After due approval by the Engineer, these drawings shall become a part of this contract and the work shall be done in conformity therewith. No such work shall begin or devices purchased until the drawings covering it or they have been approved. The approval of the drawings shall not relieve the Contractor of responsibility or waive or modify any of the provisions or requirements of this contract.
- G. ADDITIONAL DRAWINGS BY CITY. The drawings made a part of this contract at the time of its execution are intended to be fairly specific and to indicate the detail of the scope of the work. In addition to these drawings, however, the Engineer shall furnish such additional drawings from time to time during the progress of the work as are necessary to make clear or to define in greater detail the intent of the specifications and contract drawings, and the Contractor shall make the work conform to all such drawings.
- H. CLEANING UP. The Contractor shall not allow the site of the work to become littered with trash and waste material, but shall maintain the same in a neat and orderly condition throughout the construction period in conformance with Section 5-1.31, "Job Site Appearance," of the Standard Specifications and these special provisions. The Engineer shall have the right to determine what is or is not waste material or rubbish and the place and manner of disposal.

On or before the completion of the work the Contractor shall, without charge therefore, tear down and remove all temporary structures built by Contractor, and shall remove rubbish of all kinds from any of the grounds which Contractor has occupied and leave them in a condition acceptable to the Engineer.

Full compensation for conforming to the provisions of "Cleaning Up," of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

- I. SALVAGE FOR THE CITY. None

SECTION V. CONTROL OF WORK

The bidder's attention is directed to the provisions in Section 5 of the State Specifications for the requirements and conditions concerning Control of Work and these special provisions.

- A. AUTHORITY OF THE ENGINEER. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of the work performed, as to the quality and acceptability of materials furnished, and as to the manner of performance and the rate of progress of the work, and shall decide all questions which may arise as to the interpretation of the Plans and Specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor, and as to compensation. The Engineer's decisions shall be final; the Engineer shall have authority to enforce and make effective such decisions and orders as the Contractor fails to carry out promptly.
- B. COOPERATION OF THE CONTRACTOR. Whenever the Contractor is not present on any part of the work where it may be desired to give directions, orders will be given by the Engineer in writing and shall be received and obeyed by the Superintendent or Foreman who may have charge of the particular work in question.

The representative must be present at the job site while work is in progress. The Contractor must submit the representatives contact information (name, telephone number) so the representative can be easily contacted to perform emergency work while work is not in progress.

- C. COOPERATION BETWEEN CONTRACTORS. Where two or more contractors are employed on related or adjacent work, each shall conduct their operation in such a manner as not to cause any unnecessary delay or hindrance to the other. Each Contractor shall be responsible to the other for all damage to work, to persons or property, or for loss caused by failure to finish the work within the time specified for completion.
- D. CHARACTER OF WORKERS. If any person employed by the Contractor, or by a subcontractor, 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, that person shall be discharged immediately upon the recommendation of the Engineer, and shall not again be employed on the work.
- E. PERMITS AND LICENSES. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices incident to the lawful prosecution of the work.
- F. ACCESS TO WORK. The Engineer and the Engineer's authorized assistants shall at all times have access to the work during its progress. All work done and all materials furnished shall be subject to the inspection of the Engineer.
- G. INSPECTION. The inspection of the work shall not relieve the Contractor of its obligation to fulfill the contract as prescribed, and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such defective work and materials have been previously overlooked by the Engineer and accepted or estimated for payment.
- H. REMOVAL OF DEFECTIVE OR UNAUTHORIZED WORK. All work which has been rejected shall be remedied or removed and replaced in an acceptable manner by the Contractor at the Contractor's own expense, and no compensation will be allowed Contractor for such removal or replacement.
- I. LANDSCAPE DAMAGES. Repair slopes or other existing facilities that were damaged after starting job site activities and before starting plant establishment.

As ordered, replace plants that have been damaged from either or both of the following conditions:

1. Ambient air temperature falling below 32 degrees F during the plant establishment period
2. Department or its supplier restricting or stopping water delivery during the plant establishment period

This plant replacement work is change order work.

- J. EQUIPMENT. The use of equipment which is obsolete as to type, in bad condition or worn out will not be permitted on the work. The Contractor shall provide adequate and suitable equipment and plans to meet the requirements of the work, and when ordered by the Engineer shall remove unsuitable equipment from the work.
- K. FINAL INSPECTION. When the work performed by the Contractor shall have been satisfactory and the final cleaning up performed, the Engineer will make the final inspection.

SECTION VI. CONTROL OF MATERIALS

The Bidder's attention is directed to the provisions in Section 6 of the State Specifications for the requirements and conditions concerning Control of Materials and these special provisions.

- A. DEFECTIVE MATERIALS. All materials not conforming to the requirements of these specifications shall be considered as defective, and all such materials -- whether in place or not -- shall be rejected and shall be removed immediately from the site of the work.
- B. REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES. The Contractor shall remove from the site of the work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the work; upon failure to do so or to make satisfactory progress in so doing within forty-eight (48) hours after the service of a written notice by the Engineer, the condemned materials or work may be removed by the City and the cost of such removal shall be taken out of the contract price. No such rejected or condemned material shall again be offered for use by the Contractor under this contract.
- C. SUBMITTALS. Attention is directed to Section 5-1.23, "Submittals," of the State Specifications. Within fifteen (15) calendar days after award of the contract, before any materials are purchased, brought to the site or installed, the Contractor shall submit to the Engineer a complete listing of the manufacturers of each item of equipment or assembly fabricated off the site which the Contractor proposes to furnish on the project, together with sufficient information including shop assembly and detail drawings, manufacturers' specifications, and performance data to demonstrate clearly that the materials and equipment to be furnished comply with the provisions and intent of the contract specifications, contract drawings and contract documents. If the information shows any deviation from the contract requirements, the Contractor shall, by a statement in writing accompanying the submittal, advise the Engineer of the deviation and state the reason therefore.

Approval by the Engineer of shop drawings and other data submitted by the Contractor shall not relieve the Contractor from responsibility for any errors therein or of furnishing the materials and equipment of proper dimension, size, quantity, quality, and all performance characteristics to meet the requirements and intent of the contract documents. The Contractor shall have no claim for damages or extension of time on account of any delay in the work resulting from the rejection of materials or from revision and resubmittal of drawings and other data for approval. All submittals and shop drawings shall be furnished to the City in quadruplicate.

- D. TRADE NAMES, ALTERNATIVES, OR EQUALS. Attention is directed to Section 6-1.05, "Trade Names and Alternatives," of the Standard Specifications.
- E. STORAGE OF MATERIALS. Unless specifically authorized by the Engineer, no materials shall be stored overnight upon any public road or right of way within the City.

SECTION VII. LEGAL RELATIONS AND RESPONSIBILITY

The Bidder's attention is directed to the provisions in Section 7 of the State Specifications for the requirements and conditions concerning Legal Relations and Responsibility to the Public and these special provisions.

- A. LEGAL RESTRICTIONS. The Contractor shall stay fully informed of all existing and future state and national laws and municipal ordinances and regulations which in any manner affect those engaged or employed on the work, or which in any manner affect the conduct of the work. The Contractor shall at all times observe and comply with all such existing and future laws, ordinances and regulations.
- B. 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.
- C. SANITARY PROVISIONS. The Contractor shall comply with all of the sanitary regulations prescribed by the California Department of Health Services.
- D. PUBLIC CONVENIENCE AND SAFETY. Contractor's attention is directed to the provisions in Section 7-1.03, "Public Convenience" and Section. 7-1.04, "Public Safety" of the Standard Specifications. The Contractor shall so conduct its operations as to offer the least possible obstruction and inconvenience to the public. It shall be the responsibility of the Contractor to protect and guard the public from injury or damage due to any cause.
- E. RESPONSIBILITY FOR WORK. Accepting as herein otherwise provided, until the formal acceptance of all work by the City, the Contractor shall have the charge and care thereof, and shall take every necessary precaution against injury or damage to any part thereof from any cause whatever. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any cause before its acceptance, and shall bear the expense thereof.
- F. HOURS OF LABOR. The Contractor shall forfeit as penalty to the City, Fifty Dollars (\$50.00) for each laborer, worker, or mechanic employed in the execution of the contract by the Contractor, or by any subcontractor, upon any of the work hereinafter mentioned, for each working day during which said laborer, worker or mechanic is required or permitted to labor more than eight hours per day or forty hours per week in violation of the provisions of Labor Code §1815.
- G. PREVAILING WAGE. The Contractor shall, as a penalty to the City, forfeit Fifty Dollars (\$50.00) for each working day or portion thereof for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed for any public work done under the contract by the Contractor or any of Contractor's subcontractors. The difference between such stipulated prevailing wage rates and the amount paid to each worker for each working day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor. The provisions of Labor Code §1773, §1773.2, §1773.4 and §1775 of the will be complied with.

Pursuant to the State of California, or local law thereto applicable, the City Council hereby determines that the general prevailing per diem rate in the locality in which the work is to be performed, for laborers and for each craft or type of worker and mechanic employed in the execution of this contract, is the Union Wage Scale established for Santa Cruz County, which wage scale as of the execution date of this contract is incorporated herein as if fully set forth.

Copies of the prevailing rate of per diem wages prepared and available by the California State Department of Industrial Relations.

- H. COMPLIANCE WITH DIVISION OF APPRENTICESHIP STANDARDS. The Contractor to whom the contract is awarded shall, in compliance with the California Labor Code § 1777.5, be required to adhere to the provisions of the ratio of apprentices to journeymen as more particularly defined in the aforementioned Labor Code section. Notice is given that the City of Capitola will, within five (5) days of awarding of contract, notify the Division of Apprenticeship Standards of such awarding and will notify said Division of any findings of any discrepancies regarding the ratio of apprentices to journeymen.
- I. CERTIFIED PAYROLL RECORDS. The Contractor and each subcontractor shall keep or cause to be kept an accurate record showing the names and occupations of all laborers, workers and mechanics employed by the Contractor in connection with the execution of this contract or any subcontracts thereunder and also showing the actual per diem wages paid to each of such workers, which record shall be open at all reasonable hours to the inspection of the City awarding this contract, its officers and agents, and to the Chief of the Division of Labor Statistics and Law Enforcement and the State Department of Industrial Relations, its deputies and agents.

All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

- J. POSTING MINIMUM WAGE RATES/ JOB SITE POSTINGS. The Contractor shall post at conspicuous points on the site of the project a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. The contractor shall post job site notices prescribed by regulation (See 8 Calif. Code Reg §16451 (d) for the notice that previously was required for project monitored by the CMU).
- K. PAYMENT OF EMPLOYEES. The Contractor and each subcontractor shall pay each employee engaged in work on the project under this contract in full (less deductions made mandatory by law) and not less often than once a week.
- L. REGISTRATION OF CONTRACTORS. At the time of award of the contract, the Contractor shall be licensed in accordance with the provisions of Chapter 9 of Division III of the Business and Professions Code.
- M. RESPONSIBILITY FOR DAMAGE. The City of Capitola, the City Council, or the Engineer shall not be answerable or accountable in any manner for any loss or damage that may happen to the work or any part thereof; or for any of the materials or other things used or employed in performing the work; or for injury to any person or persons, either workers or the public; for damage to property from any cause which might have been prevented by the Contractor, Contractor's workers, or anyone employed by the Contractor; against all of which injuries or damages to persons and property the Contractor having control over such work must properly guard. The Contractor shall be responsible for any liability imposed by law for any damage to any person or property resulting from defects or obstructions or from any cause whatsoever during the progress of the work or at any time before its completion and final acceptance, and shall indemnify and save harmless the City of Capitola, the City Council, and the Engineer from all suits or actions of every name and description brought forth or on account of any injuries or damages received or sustained by any person or persons by or from the Contractor, Contractor's servants or agents, in the construction of the work or by or in consequence of any negligence in guarding against such injuries or damages or on the account of any act or omission of the Contractor or Contractor's agents, and in addition to any remedy authorized by law so much as shall be considered necessary by the City Council may be retained by the City of Capitola until disposition has been made of such suits or claims for damages as aforesaid.

The Contractor shall be responsible for any liability imposed by law or for any damage to any person or property and shall indemnify and hold harmless the City of Capitola, its officers and employees, all in the same manner and to the same extent as provided above for the protection of the City, the City Council and the Engineer, except that no retention of money due the Contractor under and by virtue of the contract will be paid by the City of Capitola, pending disposition of suits or claims for damages brought against the City.

N. TERMINATION OF CONTRACT. If the work provided for under this contract shall be abandoned, or if the contract shall be sublet or assigned without the consent of the City, or if at any time the Engineer shall be of the opinion that the conditions specified as to the rate of progress are not being fulfilled, or that the work or any part thereof is unnecessarily delayed, or that the Contractor is willfully violating any of the conditions or provisions of this contract or is executing the same in bad faith, the City shall notify the Contractor to fulfill the conditions of this contract. Should the Contractor fail to begin compliance with said notice within five (5) calendar days, the City may, at its discretion, notify the Contractor to discontinue all work under this contract or any part thereof, and thereupon the Contractor shall discontinue work, and the City may, by contract or otherwise, at its discretion, complete the work or such part thereof, and may take possession of the work and use therein such materials, machinery, implements and tools of every description as shall be found upon the work, or provide whatever is needed for the completion of the work and charge the expense thereof to the Contractor. In order to meet the expenses so incurred, the City is hereby authorized by the Contractor to draw a warrant in the name of the Contractor and in favor of these persons, firms or corporations doing the work or providing the materials or labor therefore, against the fund or appropriation set aside for the purpose of this contract. When a warrant is so drawn it shall be conclusive upon the Contractor and shall be to all intent and purposes the same as drawn by the Contractor in person. When any of the said demands have been audited and paid, the amount of the same shall be deducted from the fund or appropriation set-aside for the purposes of this contract being so terminated. The Contractor shall immediately, upon due notice from the Engineer to do so, remove from the premises all materials and personal property belonging to the Contractor which have not already been used in the construction of the work or which are not in place in the work, and the Contractor shall forfeit all rights under this contract, and both the Contractor and Contractor's sureties shall be liable for the bond for all damages caused the City by reason of Contractor's failure to complete this contract.

Neither the extension of time for any reason beyond the date fixed for the completion of this work, nor the doing and acceptance of any part of the work called for by the terms of this contract, subsequent to the said date, shall be deemed to be a waiver by the City of the right to abrogate, annul, or terminate this contract for abandonment or other cause as provided above.

During the performance of this contract, the Contractor, its assignees and successors in interest (hereinafter referred to as "Contractor") agree as follows:

1. COMPLIANCE WITH REGULATIONS. The Contractor will comply with the Regulations of the Department of Transportation relative to nondiscrimination in federally-assisted programs of the Department of Transportation (Title 15, Code of Federal Regulations, Part 8, hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
2. NONDISCRIMINATION. The Contractor, with regard to the work performed by it after award and prior to completion of the contract work, will not discriminate on the grounds of race, color, sex, or national origin, ancestry, physical handicap, medical condition, marital status, or religion in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The Contractor will not participate either directly or indirectly in the discrimination prohibited by Section 1735 of the Labor Code.

3. SOLICITATIONS FOR SUBCONTRACTS, INCLUDING PROCUREMENT OF MATERIALS AND EQUIPMENT. In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurement of materials or equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, ancestry, physical handicap, medical condition, marital status, or religion.
4. INFORMATION AND REPORTS. The Contractor will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the City to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of the Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the City, and shall set forth what efforts it has made to obtain the information.
5. SANCTIONS FOR NONCOMPLIANCE. In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, the City shall impose such contract sanctions as it may determine to be appropriate, including but not limited to:
 - a. Withholding of payments to the Contractor under the contract until the Contractor complies,
and/or
 - b. Cancellation, termination or suspension of the contract, in whole or in part.
6. INCORPORATION OF PROVISIONS. The Contractor will include the provisions of Paragraphs 1 through 5 in every subcontract, including procurement of materials and leases of equipment, unless exempt by the regulations, order or instructions issued pursuant thereto. The Contractor will take such action with respect to any subcontract or procurement as the City may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in or is threatened with litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the City to enter into such litigation to protect the interests of the City.
- O. WATER POLLUTION. Attention is directed to Section 13, "Water Pollution Control," of the Standard Specifications and Section 10-2.06, "Temporary Water Pollution and Erosion Control" elsewhere in the special provisions.
- P. CONSTRUCTION HOURS. Construction hours shall be limited between the hours of 8:00 a.m. and 5:00 p.m. on weekdays. Construction shall be prohibited on weekends except for emergency work approved by the Engineer.

SECTION VIII. PROSECUTION, PROGRESS AND PAYMENT

Attention is directed to Sections 8 and 9 of the State Specifications for the requirements and conditions concerning Prosecution, Progress and Payment and these special provisions.

- A. COMPLETION AND PAYMENT. All work completed under the contract shall be paid for in accordance with the provisions of these specifications. The Contractor shall accept the compensation as provided in the contract in full payment for furnishing all materials, labor, tools and equipment, including all applicable taxes and fees, necessary to complete the work and for performing all work completed and embraced under the contract.
- B. PROGRESS ESTIMATE AND PAYMENT. The Engineer shall, on or around the twentieth (20th) day of each month, make an estimate of the value of the work performed and materials furnished in accordance with this contract. The first estimate shall be of the value of the work done and of the materials proposed and suitable for permanent incorporation in the work delivered and suitably and safely stored at the site of the work since the Contractor began the performance of this Contract.

Every subsequent estimate, except the final estimate, shall be of the value of the work done and materials delivered and suitably stored at the site of the work since the last preceding estimate was made; provided, however, that should the Contractor fail to adhere to the program of completion fixed in this contract, the Engineer shall deduct from the next and all subsequent estimates the full calculated accruing amount of the liquidated damages to the date of said estimate, until such time as the compliance with the program has been restored; and provided, further, that no estimate shall be required to be made when in the judgment of the Engineer the total value of the work done and materials incorporated into the work under this contract since the last preceding estimate amounts to less than One Thousand Dollars (\$1,000.00); and provided, also, that materials so delivered and estimated shall not be removed from the site of the work prior to its completion without the written consent of the Engineer.

The estimates shall be signed by the Engineer, and after approval by the City, the City shall pay or cause to be paid to the Contractor, in the manner provided by law, an amount equal to ninety per cent (90%) of the estimated value of the work performed and of the value of the materials furnished and delivered and unused, such materials to be those which are proposed and suitable for permanent incorporation in the work.

Items for which quantities are indicated lump sum shall be paid for at the unit price indicated in the bid proposal. Such payment shall be full compensation for the items of work and all work appurtenant thereto.

When required by the specifications or requested by the Engineer, the Contractor shall submit to the Engineer within fifteen (15) calendar days after award of contract, a detailed schedule in triplicate, to be used only as a basis for determining progress payments on a lump sum contract or designated lump sum bid item. This schedule shall equal the lump sum bid and shall be in such form and sufficiently detailed as to satisfy the Engineer that it correctly represents a reasonable apportionment of the lump sum.

- C. SUBSTITUTION OF SECURITIES FOR WITHHELD AMOUNTS. Pursuant to Chapter 13 (commencing with Section 4590), Division 5, Title 1 of the Government Code of the State of California, securities may be substituted for any moneys withheld by public agency to ensure performance under a contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the public agency, or with a state or federally chartered bank as the escrow agent, who shall pay such moneys to the Contractor upon satisfactory completion of the contract.

Securities eligible for substitution under this section shall include those listed in Section 16430 of the Government Code of the State of California or bank or savings and loan certificate of deposit. The Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon. Any escrow agreement entered into pursuant to this section shall contain as a minimum the following provisions: (a) The amount of securities to be deposited; (b) The terms and conditions of conversion to cash in case of the default of the Contractor; and (c) The termination of the escrow upon completion of the contract.

- D. FINAL ACCEPTANCE. The Engineer shall, as soon as practical after the final acceptance of the work done under this contract, make a final estimate of the amount of work done there under and the value thereof. Such final estimate shall be signed by the Engineer, and after approval the City shall pay or cause to be paid to the Contractor in the manner provided by law, the entire sum so found to be due hereunder, after deducting therefrom all previous payments and such other lawful amounts as the terms of this contract prescribe.

In no case will final payment be made in less than thirty-five (35) calendar days after the filing of a "Notice of Completion" in the County Recorder's Office, Santa Cruz County, California.

SECTION IX. INSURANCE

A. PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE. The Contractor shall take out and maintain during the life of this contract such public liability and property damage insurance, by an insurer acceptable to the City, that shall protect Contractor and any subcontractor performing work covered by this contract from any claims for property damage which may arise because of the nature of the work or from operations under this contract, whether such operations are performed by the Contractor or by any subcontractor or anyone directly or indirectly employed by either of them, even though such damages may not be caused by the negligence of the Contractor or any subcontractor, or anyone employed by either of them. The public liability and property damage insurance shall name the City, its officers, agents and employees as insured's, and all insurance policies issued hereunder shall so state. The amounts of such insurance shall be as follows:

1. CONTRACTORS LIABILITY INSURANCE. Shall provide bodily injury liability limits of not less than \$1,000,000 for each person, and \$2,000,000 for each accident or occurrence, and property damage liability limits of not less than \$1,000,000 for each accident or occurrence with an aggregate limit of \$2,000,000 for claims which may arise from the operations of the Contractor in the performance of the work hereunder provided. This insurance must include coverage for contractual liability assumed by the Contractor under Paragraph F, Section VII, Responsibility for Work.
2. AUTOMOBILE LIABILITY INSURANCE. Covering all vehicles used in the performance of the contract providing bodily injury liability limits of not less than \$500,000 for each person and \$1,000,000 for each accident or occurrence, and property damage liability limits of not less than \$500,000 for each accident or occurrence which may arise from the operations of the Contractor in performing the work provided for herein.

Before the execution of the contract, the successful bidder shall file with the City a certificate or certificates of insurance, covering the specified insurance. Each such certificate shall bear an endorsement precluding the cancellation or reduction in coverage of any policy evidenced by such certificate, before the expiration of thirty (30) calendar days after the City shall have received notifications by registered mail from the insurance carrier.

All policies shall name the City of Capitola as an insured under all terms of the policy.

B. WORKER'S COMPENSATION INSURANCE. Before beginning the work, the Contractor shall furnish to the City satisfactory proof that Contractor has taken out for the period covered by the work under this contract, full compensation insurance for all persons employed directly by Contractor or through subcontractors in carrying out the work contemplated under this contract, in accordance with the "Worker's Compensation and Insurance Act," Division IV of the Labor Code of the State of California and any acts amendatory thereof. Such insurance shall be maintained in full force and effect during the period covered by this contract.

SECTION X. TECHNICAL PROVISIONS
SECTION 10-1. GENERAL

10-1.01 COOPERATION--Attention is directed to Section 5-1.20, "Coordination with Other Entities," and Section 5-1.36D, "Non-Highway Facilities," of the Standard Specifications and these special provisions.

10-1.02 OBSTRUCTIONS--Attention is directed to Section 5-1.36D, "Non-Highway Facilities," of the Standard Specifications and these special provisions.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least (two) 2 working days prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include but are not limited to the following:

Underground Service Alert
Northern California (USA)

Telephone: 811 or (800) 227-2600

Pursuant to Government Code Section 4216.e, the inquiry identification number from the regional notification center shall remain valid for not more than fourteen (14) calendar days from the date of issuance, and after that date shall require regional notification center revalidation. Inquiry identification number means the number which is provided by a regional notification center to every person who contacts the center pursuant to Government Code Section 4216.2.

If such facilities are not located on the plans in both alignment and elevation, no work shall be performed in the vicinity of said facilities until the owner or its representative, has located the facility by potholing, probing, or other means that will locate and identify the facility. If, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with by reason of the utility facilities not being located by the owner or its representative, the City will compensate the Contractor for such delays to the extent provided in Section 8-1.07, "Delays," of the Standard Specifications, and not otherwise, except as provided in Section 5-1.36D, "Non-Highway Facilities," of the Standard Specifications.

Utility facilities will be relocated by the utility owners during the progress of the Contract. The Contractor shall notify the Engineer in writing prior to doing any work in the vicinity of the facility. The utility facility will be relocated within the listed working days, as defined in Section 8-1.05, "Time," of the Standard Specifications, after said notification is received by the Engineer.

10-1.03 MAINTAINING ACCESS--Attention is directed to Sections 7-1.03, "Public Convenience," and 7-1.04, "Public Safety," of the Standard Specifications and shall consist of installing temporary pedestrian signing, fencing, barricades, plywood walkways, and ramping as necessary to maintain safe passage, in conformance with these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from responsibility as provided in said Section 7-1.04 "Public Safety".

Vehicular and pedestrian access to private property, shall be maintained at all times, unless the closing of such access is approved by the Engineer. Contractor shall not impede upon the private properties adjacent to the area of work without written approval from the property owner and the Engineer.

Existing signage within the limits of construction shall be protected in place by the Contractor during the construction period unless otherwise approved by the Engineer.

When necessary, trenches and other excavations shall be bridged with steel plates as required by the Engineer. The bridging shall be placed to permit an unobstructed flow of traffic. Advanced warning signs shall be required when trenches and other excavation are bridged in the travel way.

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

The Contractor shall notify local public safety authorities of this intent to begin work at least 5 working days before work is begun. The Contractor shall cooperate with local public safety authorities relative to handling traffic through the area and shall make its own arrangements relative to keeping the working area clear of parked vehicles.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if in the opinion of the Engineer public traffic will be better served and the work expedited. Such deviations shall not be implemented until the Engineer has issued written approval. All other modifications will be made by Contract Change Order.

Temporary "No Parking" signs shall be attached to existing poles, street light standards or trees. Temporary "No Parking" signs shall conform to the provisions in Section 12.3.06B (3), "Portable Signs," of the Standard Specifications. The signs shall be in place not less than 48 hours prior to starting work.

The Contractor shall conduct all construction operations with the least possible obstruction and inconvenience to the public. The Contractor shall have no greater length or amount of work under construction than can be completed within a workday.

Full compensation for the maintaining "Access" conforming to the provisions these special provisions shall be considered as included in the prices paid for the various items of work and no additional compensation will be allowed therefore.

10-1.04 WATERING--Watering shall conform to the provisions in Section 17, "Watering," of the Standard Specifications.

10-1.05 LINES AND GRADES--Construction surveys shall comply with Section 5-1.26, "Construction Surveys," of the Standard Specifications and these special provisions except that the Contractor shall be responsible for setting all lines and grades necessary to establish the lines and grades required for the completion of the work specified on the Plans, and in these special provisions.

10-1.06 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES--When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.1 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Section 8-1.07, "Delays," of the Standard Specifications.

SECTION 10-2. SPECIALS

10-2.01 PROGRESS SCHEDULE--The Contractor shall submit a detailed construction schedule to the Engineer for review and approval prior to the pre-construction meeting for the project. Construction schedules shall conform to the provisions in Section 8-1.02, "Schedule," of the Standard Specifications.

The construction schedule shall be consistent in all respects with the times and order of work requirements necessary to complete the project as approved by the Engineer.

Contractor shall notify the Engineer immediately of any changes to the schedule impacting the project completion date.

Measurement and Payment--Full compensation for the preparation and updating of the Progress Schedule conforming to these special provisions shall be considered as included in the prices paid for the various items of work and no additional compensation will be allowed therefore.

10-2.02 MOBILIZATION--This work shall consist of preparatory work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

Measurement and Payment--The contract lump sum price paid for "Mobilization" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in mobilization as specified herein. Partial payment for mobilization shall be made consistent with Section 9-1.16D, "Mobilization," of the standard specifications.

10-2.03 TRAFFIC CONTROL--This work shall conform to the provisions in Section 12, "Temporary Traffic Control," of the Standard Specifications and these special provisions, and shall consist of installing temporary traffic-handling equipment and devices, maintaining traffic, placing and installing temporary traffic control systems and placing temporary pavement delineation, pedestrian signing, fencing, barricades, as necessary to maintain safe passage, as shown on the Plans and in conformance with these special provisions. Temporary traffic control must comply with part 6 "Temporary Traffic Control," of the California MUTCD.

The contractor shall provide Traffic Control and Construction area signs as shown on the plans. The Contractor can modify the Traffic Control Plan upon approval by the Engineer. If the Contractor chooses to modify the Traffic Control Plan, the contractor shall prepare a revised Traffic Control and Pedestrian Access Plan for approval by the Engineer prior to construction at the Contractors sole cost, no additional compensation will be allowed therefore. The revised Traffic Control and Access Plan shall be prepared in conformance with City requirements and shall show the following minimum applicable information:

1. Street and traffic lane layout (width of sidewalk, street and lanes etc.); outline of the work under construction (i.e., limits of excavation), location of construction barricades, location of trench protection devices, location of major construction equipment and the ingress and egress routes of trucks hauling materials to and from the construction site.
2. Sequence of construction and traffic lane transitions.
3. Duration and time extents of closure.
4. Crosswalk and sidewalk closures.
5. Parking or bus stop closures.

6. Existing striping, pavement markings and traffic signs, and description of what is to be removed prior to installation of temporary striping and signage, and what will be restored after the construction is completed.
7. Location and spacing of "Tow-Away No Stopping" signs.
8. Location and description of temporary striping, pavement markings, signs, and other traffic control devices necessary to provide and maintain the adequate number and width of traffic lanes specified herein, and to provide and maintain passage and protection for pedestrians.
9. Location and description of traffic control devices proposed for the protection of the work area, excavation, etc.
10. Other proposed changes and provisions for removal, relocation, or temporary installation of:
 - a. Traffic signs
 - b. Transit stops
 - c. Barricades
 - d. Solar operated flashing arrow signs
 - e. Traffic Signals
11. Location of detour signs for vehicular, truck, and pedestrian traffic.

Walkways and bicycle paths shall remain open during business hours. The Contractor shall provide and install temporary fencing, signing and ramping to provide safe pedestrian traffic through the project site and shall maintain safe access to all properties at all times.

The Contractor shall comply with regulatory requirements for closure of streets, if necessary. At least 48 hours in advance of closing any street, alley, or other public thoroughfare, the Contractor shall notify the Police and Fire Departments, and shall comply with their requirements.

The provisions of this section shall not relieve the Contractor from its responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions of Section 7-1.09, "Public Safety," of the Standard Specifications.

Contractor shall post sidewalk closures/detour signs as approved by the Engineer to provide pedestrians with advance warning of the closures. The Contractor shall provide warning signs for temporary ramps and barricades. Warning signs shall be located at both the near side and the far side of the intersection preceding a temporarily completely blocked pedestrian way. Construction area signs shall conform to the provisions of Section 12.3.06C (2), "Stationary Mounted Signs," of the Standard Specifications. Locations of Construction Area signs shall be approved by the Engineer prior to their placement.

Construction area signs shall conform to the provisions of Section 12.3.06A, "Stationary Mounted Signs," of the Standard Specifications. Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes. Locations of signs shall be approved by the Engineer prior to their placement.

Flaggers shall be provided at locations as shown on the plans or as approved by the Engineer. The flaggers shall be used in each situation when the Contractor's equipment or vehicle backs up into a travel lane, or occupies intermittently a traffic lane, or enters from the work area into a traffic lane, or where required for traffic control, as directed by the Engineer. Flaggers shall comply with Section 12-1.02, "Flaggers," of the Standard Specifications.

Temporary “No Parking” signs shall be attached to existing poles, street light standards or parkway trees. Temporary “No Parking” signs shall conform to the provisions in Section 12.3.06B (3), “Portable Mounted Signs,” of the Standard Specifications.

The Contractor shall contact the property owners 72-hours prior to any disruption to driveway or building entrance. Closure of driveways or access to private property shall be minimized.

The Contractor shall conduct all construction operations with the least possible obstruction and inconvenience to the public. The Contractor shall have no greater length or amount of work under construction than can be completed within a workday.

The Contractor shall provide routing of vehicular and pedestrian traffic, as specified herein, in a manner that will be safe and will minimize traffic congestion and delays during construction and as approved by the Engineer.

The Contractor shall be responsible for providing safeguards, safety devices, protective equipment, and any other needed actions to protect life, health, and safety of the public, and to protect property in connection with its construction operations.

The Contractor may request in writing to the Engineer deviation from the requirements of these special provisions. Such deviation shall not be implemented until the Engineer has issued written approval.

Measurement and Payment- The adjustment provisions in Section 4-1.05, “Changes and Extra Work” of the Standard Specifications shall not apply to the item of traffic control. Adjustments in compensation for traffic control will only be made for increased or decreased traffic control required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. The adjustment will be made on a force account basis as provided in Section 9-1.04, “Force Account,” of the Standard Specifications for increased work and estimated on the same basis in the case of decreased work.

The contract lump sum price paid for “Traffic Control” shall include full compensation for furnishing all labor, materials (including construction area signs), tools, equipment, and incidents, and for doing all the work involved in maintaining a safe passable roadway including placing, removing, storing, maintaining, replacing, and disposing of traffic control components as specified in the Standard Specifications, these special provisions, and as directed by the Engineer.

10-2.04 DEMOLITION--The work performed in connection with “Demolition” shall conform to the designs and details shown on the plans and these special provisions.

Work included in “Demolition” shall include, but not be limited to:

1. Sawcutting – Asphalt and Concrete Pavement.
2. The removal and disposal of existing asphalt pavement, PCC sidewalks, PCC pavement, curb and gutter, and as identified on the plans.
3. Excavating and off-hauling demolished material.
4. Removal and disposal of other materials necessary to accommodate the proposed work, including but not limited to:
 - a. Roadside signs
 - b. Existing vegetation
 - c. Other items not shown on the plans.
5. Clearing and Grubbing

All work shall be performed in accordance with Section 15, “Existing Facilities,” of the Standard Specifications and these special provisions.

Contractor shall take precautionary measures to protect the existing improvements and landscaping to remain in place. Replacement and/or repair of these existing improvement resulting from damage by the Contractor will be done at the Contractor's sole expense.

Prior to demolition Contractor shall inspect the site to confirm limits and removal as shown on the plans. The drawings do not purport to show all objects existing on the site. Before commencing the demolition work, the Contractor shall verify with the Engineer all objects to be removed and all objects to be preserved.

Contractor shall provide the protections necessary to prevent damage to existing improvements, and existing utilities, indicated to remain in place. Contractor shall protect improvements and landscaping on adjoining properties. All damaged improvements and landscaping shall be replaced or restored to their original condition at the Contractor's sole expense in conformance with Section 5-1.39 "Damage Repair and Restoration," of the Standard Specifications.

Clearing and Grubbing shall be in accordance with Section 16, "Clearing and Grubbing", of the Standard Specifications. The cost associated with clearing and grubbing shall be included in the price paid for as demolition, and no additional payment will be allowed therefore.

Contractor shall sawcut asphalt and concrete pavement in a neat line along the edge of the portions to remain prior to removal. Sawcuts shall be smooth and vertical.

All concrete, AC pavement, and aggregate base shall be hauled off site and disposed of in a legal matter at the Contractor's sole expense.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.05 TEMPORARY WATER POLLUTION CONTROL AND EROSION CONTROL--This work shall conform to the provisions in Section 13, "Temporary Water Pollution Control", Section 21, "Erosion Control," of the Standard Specifications and these special provisions, and shall consist of the preparation for developing and implementing a water pollution control program and installing temporary best management practices (BMPs).

The Contractor shall submit a Water Quality Control Plan that identifies the specific facilities and slopes to be protected, BMP's to be implemented, and meets all NPDES requirements in conformance with the Section 13-2, "Water Pollution Control Program", of the Standard Specifications.

The Contractor shall comply with all appropriate Best Management Practices and applicable design recommendations of the Engineer and Regional Water Quality Control Board (RWQCB) for preventing and removing pollutants, specifying erosion control measures, including sedimentation basins, infiltration basins, and re-vegetation of graded slopes.

Construction water quality control measures shall include the following:

1. Existing vegetation shall be retained where possible,
2. Grading activities will be limited to the immediate area required for construction,
3. Erosion control measures such as silt fences, staked straw bales, and temporary re-vegetation shall be employed for disturbed areas to prevent soil, dirt and debris from entering the storm drain system;

4. No disturbed surfaces shall be left without erosion control measures in place during the winter and spring months; Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures;
5. Measures shall be taken to ensure proper collection and disposal of all pollutants handled or produced on the site during construction, including sanitary wastes, cement, and petroleum products;
6. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

Maintenance:

1. Repair of BMP deficiencies caused by soil erosion or construction must begin within 72 hours of identification and completed as soon as possible.
2. Water pollution control materials such as, but not limited to silt fence and fiber rolls, shall be stockpiled on the site in sufficient quantities to stabilize any BMP deficiencies within 24 hours prior to a forecasted rain event. The Contractor shall replenish stockpiled materials as required to quickly install measures prior to forecasted rain event.
3. The Contractor shall have adequate labor on hand to install and maintain water pollution control measures within 24 hours following notification by the Engineer or before the forecasted rain, whichever is sooner.

Good Housekeeping:

1. Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized, including the implementation of "good housekeeping" source control measures. Contractor shall comply with WPCP, state and local laws concerning pollution abatement.
2. Extreme care shall be taken when hauling any earth, sand, gravel, stone, debris, or any other substance over any public street. Occurrences of material blown, spilled, or tracked over and upon said public or adjacent private property are prohibited and shall be immediately remedied. Discharge of debris is prohibited.
3. All paved areas shall be kept clear of earth material and debris. The site shall be maintained so as to prevent sediment-laden runoff to any storm drainage system, including existing drainage swales and watercourse.
4. Contractor shall install and maintain construction entrances prior to commencement of grading. All construction vehicle traffic entering onto the paved roads must cross stabilized construction entrance ways as specified in the CASQA BMP Handbook Portal. Tracking of mud or debris onto public streets, or onto adjacent public or private property, is prohibited and shall be removed immediately as required by the Engineer.
5. Staging and work areas shall be kept orderly with neat stockpiling of construction materials. Measures shall be installed at the entrance and exits of staging and work areas to control mud from entering the roadway pavement.
6. No earthen materials shall be stockpiled within 25 feet of drainage inlets. All stockpiles of earthen materials shall have appropriate erosion control measures installed to abate and control erosion, as well as perimeter sediment controls.
7. Sanitary facilities shall be maintained on the site in a manner to prevent inadvertent discharge or leakage of sanitary wastes into the storm drain system either by placing sanitary facilities in

locations that do not drain to the storm drain system and by providing secondary containment systems to capture leaked wastes.

8. Contractor shall provide dust control as required by the appropriate federal, state, and the City of Capitola requirements.

Erosion and Sediment Control Measures

Grading and Earthwork:

1. Protect areas which have been cleared and grubbed prior to excavation or embankment operations, and which are subject to runoff.
2. If the earthwork in any area has not progressed to a point where all or part of the facilities on the WPCP for that area can be constructed, the Contractor shall construct such supplementary temporary erosion control facilities as are necessary to protect adjacent private and public property at all time.
3. Water pollution control measures shall be constructed and functioning to prevent water pollution from areas where portions of the contract have been completed and no further earthwork is planned.

Inlet Protection:

1. The Contractor shall conduct his operations in such a manner that storm runoff will be contained within the project or channeled into the storm drain system which serves the runoff area. Storm runoff from one area shall not be allowed to divert to another runoff area.
2. Active drainage inlets where runoff is likely to go shall have drainage inlet protection installed around the immediate perimeter of the inlet. The perimeter of each individual work area shall have measures installed to control sediments that would otherwise leave the work area and enter the drainage system. Regular cleaning of gravel bag inlet protection so that sediment depth never exceeds a maximum of 3 inches.
3. If there is no active drainage system within each individual work area, the Contractor shall submit a WPCP proposing measures to de-silt and remove runoff from active construction areas. This may include the use of sediment basins, sediment traps and a pumping system to remove de-silted runoff from basins or traps.
4. Construction shall conform to the provisions of Section 13, "Water Pollution Control", and Section 21, "Erosion Control", of the Standard Specifications and to these special provisions.

Temporary Drainage Inlet Protection

1. Temporary drainage inlet protection shall be installed, maintained and later removed as shown on the Plans, as specified in these technical specifications, and as directed by the Engineer. Temporary drainage inlet protection shall be installed at each drainage system box location where runoff will enter the storm water system.
2. The Contractor shall use temporary drainage inlet protection as one of the various measures to prevent water pollution.

Temporary Gravel Filled Bag Dikes:

1. Temporary gravel filled bag dikes consisting of gravel bags placed in multiple layers shall be installed as shown on the plans.
2. Gravel filled bag dikes installed as part of temporary drainage inlet protection shall be maintained to provide for adequate sediment holding capacity. Sediment deposits shall be removed when

the deposit reaches one-half of the temporary dike height. Removed sediment shall be deposited within the project in such a way that it is not subject to erosion by wind or water, or as directed by the Engineer.

Stockpiles

1. Stockpiled material shall be located within the limits of construction delineated on the erosion control plan. Soils from the stockpile shall be self-contained and remain completely separate at all times. Contractor shall install weighted fiber rolls around the perimeter of the stockpile. The stockpile shall be covered with MIRAFI 140N or approved tarp material that is securely weighted around the entire perimeter with gravel bags.
2. All stockpiled materials shall be removed from the site prior to final inspection.

Street Sweeping

1. Maintain continuous street sweeping operation during all earth hauling operations. Dry brooming is not permitted. Street sweeping shall be conducted where sediment is tracked from the job site onto paved roads in accordance with the CASQA BMP Handbook and as directed by the Engineer.
2. Street sweeping shall start at the beginning of clearing and grubbing and shall continue until completion of the project, or as directed by the Engineer. Street sweeping shall be performed immediately after soil disturbing activities occur or offsite tracking of material is observed, at a minimum frequency of daily.
3. Street sweeping shall be performed so that dust is minimized. If dust generation occurs during sweeping or sediment pickup is ineffective as determined by the Engineer, the use of additional best management practices will be required.
4. At the option of the Contractor, collected material may be temporarily stockpiled in accordance with the approved WPCP. Collected material shall be disposed of at least once per week.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.06 EARTHWORK--The work performed in connection with "Grading" shall conform to the provisions in Section 16, "Clearing and Grubbing" and Section 19, "Earthwork" of the Standard Specifications and these special provisions and shall include excavation and the preparation of subgrade.

Submittals

- c. Test Reports: Submit gradation tests for all furnished material.

Materials

A. Satisfactory Soils: Sand, gravel, friable earth, or non-expansive clays, subject to Testing Laboratory's approval. Fill and backfill material shall be free of organic material, slag, cinders, expansive soils, trash or rubble and stones having maximum dimension greater than 6 inches. Soil shall be free of regulated contaminants as defined by the California Environmental Protection Agency.

B. Unsatisfactory Soils: Expansive and other soils containing organic material, slag, cinders, trash or rubble and stones having maximum dimension greater than 6 inches. Unsatisfactory materials also include soils not maintained within 2 percent of optimum moisture content at time of compaction.

Execution

A. Preparation

1. Notify the Engineer at least 48 hours before beginning any excavation.
2. Notify Underground Service Alert (USA) at 1-800-227-2600 at least 48 hours before beginning excavation work and have it locate and mark the facilities within the area of excavation. Notify utility companies which do not participate in USA which have underground facilities within the limits of work before beginning excavation work in accordance with each utility's notification requirements and have them locate and mark the facilities within the area of excavation. Keep marking current in accordance with the requirements of USA and other utility companies.
3. Do not proceed with underground installations until related pothole work has been completed. Determine the method and equipment required to perform potholing without damage to existing facilities. Locate existing facilities by hand digging where necessary. At a minimum, the Contractor shall utilize hand digging where recommended by Call USA guidelines. In addition to hand digging, the Contractor shall use means of potholing required by the facility owner and the Engineer.
4. Notify the Engineer immediately of any conflicts in which there is less than one foot of separation between the existing and proposed facility.
5. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
6. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface shall conform to Section 16, "Clearing and Grubbing" of the Standard Specifications.
7. Protect and maintain erosion and sedimentation controls, as specified in Section 10-2.06, "Temporary Water Pollution Control and Erosion Control" of these special provisions.

B. Excavation

1. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered, except as directed by the Engineer based upon the Contractor's arborist recommendations. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
2. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
3. Excavation Drainage: Operate pumping equipment, and/or provide other materials, means and equipment as required to keep excavation free of water and subgrade dry, firm, and undisturbed until approval of permanent work has been received from Resident Engineer. Approval by the Engineer is also required before placement of the permanent work on all subgrades.

C. Excavation for Walks and Roadway Pavements-

1. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.
2. Below proposed roadway pavement scarify and re-compact top 8" thick minimum native soil to 95 percent relative compaction.

D. Subgrade Inspection

1. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
2. Reconstruct subgrades damaged by rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

E. Storage of Soil Materials

1. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
2. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

F. Soil Moisture Control

1. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
2. Do not place backfill or fill soil material on surfaces that are muddy.
3. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

G. Compaction of Soil Backfills and Fills

1. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
2. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
3. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
4. Under pavements, scarify and re-compact top 8 inches of existing subgrade and each layer of backfill or fill soil material to 95 percent.
5. Under walkways, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill soil material to 90 percent.
6. Under lawn or unpaved areas, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill soil material to 85 percent.

H. Grading

1. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

I. Base Courses

1. Place base course on subgrades free of mud, and standing water frost, snow, or ice.
2. On prepared subgrade, place subbase and base course under pavements and walks as follows:
 - a. Shape base course to required crown elevations and cross-slope grades.
 - b. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 90 percent of maximum dry unit weight according to ASTM D 1557.

J. Field Quality Control

1. Testing Agency: Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
2. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
3. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.
4. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; compact and retest until specified compaction is obtained.

K. Protection

1. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
2. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
3. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
4. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

L. Disposal of Surplus and Waste Materials

1. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.07 AGGREGATE BASE--The work performed in connection with "Aggregate Base" shall conform to the provisions in Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions and shall include the placement of the aggregate base course.

Submittals

- A. Contractor shall provide the Engineer with a Certificate of Compliance demonstrating the aggregate base material is in compliance with requirements set forth in Section 26, "Aggregate Bases," for approval prior to placement.
- B. Upon placement of aggregate base, the Contractor shall collect and provide the Engineer with delivery tickets. Each delivery ticket shall include or be accompanied by appropriate batch information produced by batching plant or factory of origin and information stating the mix, total yield in CY, and location of delivery.

Materials

- A. Aggregate Base shall be Class 2 and conform to grading and quality requirements for ¾ inch maximum in accordance with Section 26-1.02B, "Class 2 Aggregate Base," of the Standard Specifications.

Execution

- A. General - All work adjacent to existing pavement structural section shall butt up to the full existing structural section. Where the full pavement structural section is not encountered, continue removal of additional pavement structural sections until a full pavement structural section is found.

Order of Work

- A. Selective tree and vegetation trimming and/or root pruning operations necessary for work requiring equipment accessibility or installation of improvements must be approved by each the Engineer prior to performing the work, and shall be completed prior to commencement of that work.
- B. Aggregate Subbase- Finished aggregate base shall have a minimum thickness as shown on the drawings and shall not vary more than 0.05 feet above or below the established grade. The aggregate base shall be compacted to 95 percent relative compaction in conformance with ASTM D 1557. The surface of the aggregate base after compaction shall be hard, unyielding, uniform, smooth, self-draining, and true to grade and cross-section.

Field Quality Control

- A. Testing will be performed by a qualified testing agency. Compaction testing will be performed in accordance with ASTM D 1557.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- C. Frequency of Tests: Not less than one test for every 2,000 square feet of base course material, per layer or lift.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.08 MINOR CONCRETE-- The work performed in connection with "Minor Concrete" shall conform to the provisions in Section 90, "Concrete," of the Standard Specifications and these special provisions and shall consist of constructing to the designs and details shown on the Plans.

Submittals

- A. Product Data: Submit no later than fifteen (15) calendar days after contract award a typed list of products specified in this Section.
- B. Submit shop drawings for reinforcing steel and accessories in accordance with ACI Standards
- C. Statement of Mix Design: Submit (1) copy of Statement of Mix Design prepared by batch plant servicing Project for each load delivered to Project. Statement of Mix Design to contain following information:
 - 1. Name, address, and telephone number of batch plant preparing statement of mix design.
 - 2. Date of mix design.
 - 3. Project location.
 - 4. Contractor requesting load delivery.
 - 5. Mix design number.
 - 6. Integral color used.
 - 7. Gradations for aggregates, cement and water.
 - 8. Material weights, specific gravity, and absolute volumes.
 - 9. Basis of testing, i.e. UBC 2605 D4 and Title 24 2604 D4.
 - 10. Water/cement ratio.
 - 11. PSI rating.
 - 12. Signature of testing laboratory manager.
 - 13. Signed stamp from registered Project structural engineer or Engineer

Materials

- A. Aggregate Base Course: Refer to Section 10-02.08, "Aggregate Base" of these special provisions.
- B. Water: Shall conform to the requirements of Section 90-2.0D, "Water," of the Standard Specifications. Water shall be free from deleterious materials such as oils, acid, and organic matter.

Reinforcement

- A. Bar reinforcement shall be deformed and comply with ASTM A615, Grade 40 or 60 as allowed in Section 52-1.02, "Bar Reinforcement" of the Standard Specifications and as shown on the plans. Reinforcement shall be clean and free of rust, dirt, grease or oils.
- B. Welded wire fabric shall conform to Section 52, "Reinforcement," of the Standard Specifications and as shown on the plans.
- C. Tie Wire: 16-gauge plain cold-drawn steel conforming to ASTM A82, clean, and free of rust, dirt, grease or oils.

Portland Cement Concrete

- A. Portland cement concrete for curbs, curb and gutters, sidewalks, curb ramps, driveways pads, shall be six sack mix Class "A" concrete and shall conform to Section 90-"Concrete" of the Standard Specifications.
- B. Portland cement concrete for misc. foundations, shall be minimum 4,500 PSI concrete.
- C. Concrete shall be ready mix of a pre-approved mix design. Contractor shall submit concrete mix designs to the Engineer, for review, preliminary concrete mix designs which shall show all proportions and gradations of all materials proposed for each class and type of concrete specified. Each mix design shall be accompanied by a Certificate of Compliance to these specifications. Costs of obtaining mix designs shall be at the Contractor's.
- D. Aggregate gradations shall be in conformance with Section 90, "Portland Cement Concrete," of the standard specifications.
- E. Chemical Admixtures: If used, chemical admixtures shall conform to the requirements of Section 90-2.04, "Admixture Materials," of the Standard Specifications.
 - 1. Air Entrainment Admixtures: Conforming to ASTM C260.
 - 1. Acceptable Manufacturers:
 - a. Grace Construction Products; Daravair®, (800) 433-0020 or www.graceconstruction.com/concrete/air_entraining.html#daravair.
 - b. Master Builders, Inc.; Micro-Air®, (800) 628-9990 or www.masterbuilders.com/MB/pub/Product.asp?TypeCat=2&ParentID=78&ProductID=22.
 - 2. Water Reducing Admixtures: Conforming to ASTM C494, Type A.
 - 1. Acceptable Manufacturers:
 - a. Grace Construction Products; WRDA® (800) 433-0020 or www.graceconstruction.com/concrete/water_reducers.html#wrda.
 - b. Master Builders, Inc.; Micro-Air® (800) 628-9990 or www.masterbuilders.com.
 - 3. Shrinkage Reducing Admixtures: Conforming to ASTM C157.
 - 1. Acceptable Manufacturers:
 - a. Grace Construction Products; Eclipse® (800) 433-0020 or www.graceconstruction.com/concrete/shrinkage_reducers.html#eclipse.
 - b. Eclipse® Shrinkage Reducing Admixture is a liquid admixture which dramatically reduces concrete shrinkage and curling due to drying.
- F. Expansion Joint Material
 - 1. Expansion joint material shall be pre-molded expansion joint filler ¼-inch thick in conformance with ASTM D1751. Expansion joint material shall be shaped to fit the cross section of the concrete improvements prior to being placed.

G. Curing Compounds

1. All curing compounds shall be non-pigmented type in conformance with ASTM C 309. Type 1-D, Class A per Section 90-1.03B (3) of the Standard Specifications.

H. Detectable Warning Surface

1. Access ramps shall conform to the State of California Department of Transportation Standard Plans and Local Agency Standards for "Curb Ramp Details" as specified on the Plans.
2. Detectable Warning Surfaces shall comply with Americans with Disabilities Act (ADA) Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, and Section 4.29.2 Detectable Warnings on Walking Surfaces. FHA Memo (5-06-02) titled Truncated Domes. Federal Register Volume 71, No. 209, 49 CFR Part 37 (10-30-06), ADA Standards for Transportation Facilities (11-29-06, DOT): Sections 406, 705, and 810. ADA Standards for Accessible Design – 2010 (9/05/11, DOJ), ADAAG: Sections 705 and 810. Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Rights of Way (7/23/11, Access Board), PROWAG: Sections R208, R304, R305, R308, and R309.
3. American Society for Testing and Materials (ASTM) Test Methods B117, C501, C1028, D543, D570, D638, D695, D790, G151, G155, and E84.
4. American Association of State Highway and Transportation Officials (AASHTO): Test Method AASHTO-H20.
5. California Code of Regulations (CCR 2007) Title 24 Part 1 Articles 2, 3 and 4, and Part 2 Section 205 definition of "Detectable Warning", Section 1127B.5 for "Curb Ramps", and Section 1133B.8.5 for "Detectable Warnings at Hazardous Vehicle Areas". California Department of Transportation Detectable Warning Surface Authorized Material List. Division of the State Architect IR 11B-3 (1/26/05) and IR 11B-4 (1/01/11). IR 11B-4 (1/01/11) removed the requirement for a "staggered" pattern and now calls for the "square grid" (in-line) pattern.
6. Surface Applied Tactile Warning Tiles (SA) must be compliant with ADAAG, PROWAG, and CA \Title 24 requirements. Division of the State Architect IR 11B-3 (1/26/05) and IR 11B-4 (1/01/11). IR 11B-4 (1/01/11) removed the requirement for a "staggered" pattern and now calls for the "square grid" (in-line) pattern.

Execution

A. Sawcut Existing Concrete Improvements

1. Sawcut and remove existing concrete and asphalt pavement as required to perform work and as shown on the plans in accordance to Section 10-2.05, "Demolition," of these Special Provisions. Sawcuts shall provide a smooth straight edge.

B. Subgrade Preparation and Aggregate Base

1. Preparation of Subgrade and Aggregate Base shall be in conformance of Section 10-2.07, "Earthwork," and 10-2.08 "Aggregate Base," of these Special Provisions.
2. Finished subgrade shall be within the tolerances established in Section 19-1.03C, "Grade Tolerance" of the Standard Specifications.

C. Preparation

1. Moisten base to minimize absorption of water from fresh concrete.
2. Coat surfaces of structure frames with oil to prevent bond with concrete pavement.
3. Notify Engineer a minimum of 24 hours prior to commencement of concreting operations.
4. Relocation of existing manholes, vaults, inlets, gate valves, and frames shall be done in conformance of Section 15-2.1B "Adjust," of the Standard Specifications and Section 10-2.11, "Hot Mix Asphalt," of these Special Provisions.

D. Forming

1. No forms shall be placed prior to approval of the aggregate base and subbase by the Engineer.
2. Place and secure forms to correct location, dimension, profile, and gradient per Plans.
3. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
4. Place joint filler in vertical in position, in straight lines. Secure to formwork during concrete placement.

E. Reinforcement

1. Concrete Reinforcement shall be in accordance with Section 52, "Reinforcement," of the Standard Specifications and the specified standard details/plans as shown on the Plans.

F. Curb and Area Drains

1. Pipe for sidewalk drains shall be placed and installed as specified on the Plans.

G. Portland Cement Concrete

1. No concrete for concrete surface improvements shall be placed until the subgrade, aggregate base, and reinforcement, and sidewalk drains have been placed by the Contractor and approved by the Engineer.
2. Concrete curbs, gutters, sidewalks, access ramps, driveways, and miscellaneous concrete footings shall be constructed in conformance with Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications, except that hand mixing of Portland Cement will not be allowed.
3. Concrete sidewalk shall be constructed to conform to the 2013 California Building Code- Division 4 Accessible Route requirements. All improvements not meeting the 2013 California Building Code shall be removed and reconstructed at the Contractor's sole expense.
4. Sign foundations shall be constructed as specified on the Plans and Local Agency Standard Drawings.
5. Concrete surface improvements shall not exceed the tolerances established in Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications.

H. Joints

1. Joints shall comply with Section 73, "Concrete Curbs and Sidewalks" of the Standard Specifications.

I. Field Quality Control

1. Refer to Contract Conditions for responsibilities for arranging and supervising of field quality control.
2. Field Tests and Inspections:
 - a. Test reinforcements, cement, aggregates, admixtures, and batch plant. Conduct slump tests and provide compression test specimens for laboratory testing.
 - b. Manufacturer's Field Services (by Contractor) Technical representative from manufacturer shall provide field services during installation as required.
 - c. Perform pre-installation examination and acceptance of substrate and surface preparation for each stage.
 - d. Be present at initial start-up for each process. Confirm application rates and techniques.

J. Curing

1. All exposed surfaces of Portland Cement Concrete shall be cured in conformance with the manufacturer's printed recommendations and Section 90, "Concrete" of the Standard Specifications.

K. Repairs and Protection

1. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
2. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

3. Remove and replace concrete sidewalk as necessary to remove and replace amenities and as required on the plans. If removal/replacement of an amenity requires removal of sidewalk, then sidewalk shall be sawcut to a neat line completely around the removal perimeter area. Then that area will be replaced with concrete sidewalk to match existing.

Measurement and Payment- The contract unit price per square foot (SF) paid for "Minor Concrete" shall include full compensation for providing all labor, materials, equipment, tools, and incidentals and for doing all work involved in installing concrete complete in place as shown on the plans and as specified in the Standard Specifications and these special provisions.

10-2.09 OBSTRUCTIONS--The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety,

and welfare of workers and of the public. Facilities requiring special precautions include, but are not limited to, conductors for petroleum products, oxygen, chlorine, and toxic or flammable gases, natural gas in pipelines six (6) inches or greater in diameter, or pipelines operating at pressures greater than 415 KPa (guage); underground electric supply system conductors or cables with potential to ground of more than 300 V, either directly buried or in duct or conduit, which do not have concentric grounded or other effectively grounded metal shields or sheaths.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least two (2) working days, but not more than fourteen (14) calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire, or other structure. Regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert – Northern California (USA)	(811) 227-2600
	(800) 227-2600
Underground Service Alert – Southern California (USA)	(800) 422-4133
	(800) 227-2600

Relocations or repairs necessitated because of existing facilities, which are not shown on the plans or are shown at substantially different locations than existing, may be paid as extra work in accordance with Section 5-1.13 of these Special Provisions, but only if the Engineer rules that the Contractor exercised due diligence in his operation. Due diligence may be determined by the Engineer by reviewing surface and subsurface conditions that were existing prior to exposing the facility and determining the absence of any signs sufficient to warn a diligent Contractor of the possible existence of a facility in the area.

Immediately upon encountering unknown existing facilities, the Contractor shall notify the Engineer in writing of the situation, request coverage of the work as extra work, and aid the Engineer in determining due diligence. Failure to do so may result in forfeiture of any rights to receive extra work compensation under Section 8-1.07, "Delays", of the Caltrans Specifications. Should the Contractor stop work, no compensation will be made for any "down time" prior to written notifications being received by the Engineer or his representative.

Delays due to encountering unexpected facilities shall be determined and compensated in accordance with the provisions of Section 8-1.07, "Delays", of the Caltrans Specifications, and as herein modified. Delays due to encountering unexpected facilities shall be compensated as additional contract working days to the contractor. Contractor shall submit a written request to the Engineer requesting time extension due to the delay. No other compensation is allowed.

10-2.10 POTHOLING-- Contractor shall pothole to locate utilities in any area in which Contractor will be installing subsurface infrastructure.

Prior to the start of work, Contractor shall schedule and attend a Pothole Meeting with the Engineer to confirm pothole locations. The meeting shall take place after Contractor has requested USA markings, and after USA markings have been completed.

Contractor shall record all measurements taken from the top of the utility to the top of existing grade. Measure to the nearest 0.1 foot.

When potholing, Contractor must:

- A. Provide all special equipment, skilled personnel, and location services.

- B. Provide traffic control, including materials, labor, and equipment in accordance with the requirements of the appropriate jurisdictions.
- C. Neatly cut and remove existing pavement, generally 12" square for depths to 10 feet.
- D. Remove the soil above the utility using vacuum excavation and compressed air to loosen the material, in order to safely expose the top of the utility. Provide dust control. The Contractor must not inject water during potholing without the written approval of the Engineer.
- E. Backfill and compact with Class 2 aggregate base, and in paved areas, re-surface with cold asphalt to match the existing pavement section.
- F. Clean up site after completion of work.
- G. Furnish and install PK nails and high visibility "whiskers" in paved areas, and stakes in unpaved areas, directly above the center-line of the utility.
- H. Provide a table that indicates the utility reference number, description of the utility including size and material.
- I. For Record Drawings (See Section 01780, Project Record Documents), provide surveyed utility information plotted onto a drawing by layers in AutoCAD format.

Measurement and Payment- Full compensation for potholing work includes, but is not limited to, the furnishing of all labor, materials, tools, equipment, and incidentals, and for doing all work involved in locating existing underground utilities where they pose a potential conflict to the proposed contract improvements, complete in place, as shown on the plans, as specified in these Special Provisions, and as directed by the Engineer.

10-2.11 PAVEMENT STRIPES AND MARKERS-- This Section includes requirements for the removal and installation of traffic stripes, pavement markings, pavement markers, and curb markings. "Thermoplastic Traffic Stripes and Pavement Markers" shall comply to the Section 84, "Traffic Stripes and Pavement Markings" and Section 85, "Pavement Markers" of the Standard Specifications, the 2012 California Manual on Uniform Traffic Control Devices (MUTCD) and these special provisions.

Submittals

- A. Product Data: For paint, markers, and adhesive.
- B. Certificate of compliance for paint.

Materials

- A. Thermoplastic Traffic Stripes and Pavement Markings
 - 1. Paint for traffic stripes and pavement markings shall conform to the provisions in Sections 84-1, General, and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings" of the Standard Specifications.
- B. Pavement Markers
 - 1. Pavement markers shall conform to the provisions in Section 85, "Pavement Markers" of the Standard Specifications.

- C. Adhesive: Hot melt bituminous or epoxy type as specified in Section 85, "Pavement Markers" of the Standard Specifications
- D. Curb Markings
 - 1. Paint for curb markings shall conform to the provisions in Caltrans Standard Specifications Sections 84-1, "General", and 84-3, "Painted Traffic Stripes and Pavement Markings" of the Standard Specifications.

Execution

A. Remove Pavement Stripes, Markings, and Markers

- 1. Removal of traffic stripes, pavement markings and pavement markers shall conform to the provisions in Section 15-2.02C, "Remove Traffic Stripes and Pavement Markings," and Section 15-2.02D, "Remove Pavement Markers" of the Standard Specifications. All existing thermoplastic striping and markings and existing striping and markings designated on the project plans or by the Engineer shall be removed prior to sawcut and removal of existing asphalt concrete pavement. All materials resulting from grinding operations of the existing pavement striping and markings shall become the property of the Contractor and shall be removed from the right of way.

B. Installation

- 1. Paint traffic stripes (traffic lines) and pavement markings in accordance with the provisions in Sections 84-1, "General," and 84-3, "Thermoplastic Traffic Stripes and Pavement Markings," of the Standard Specifications and as indicated on the Plans.
- 2. Install pavement markers in accordance with the provisions in Section 85, "Pavement Markers" of the Standard Specifications, and as indicated on the Plans.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.12 ROADSIDE SIGNS-- This Section includes requirements for "Roadside Sign." Installation of "Roadside Signs," shall comply with Section 56, "Signs" and Section 15, "Existing Facilities," the 2012 California Manual on Uniform Traffic Control Devices (MUTCD) and these special provisions.

Submittals

- A. Certificate of compliance shall be provided for all products and materials proposed to be used under this section.

Materials-

A. Sign Plates

- 1. Roadside sign faces shall be "retro-reflective sheeting material adhered to 0.080 gauge minimum) anodized aluminum blank. The size, shape, color and legend of the sign shall conform to the current Section 56, "Signs," of the Standard Specifications.

B. Sign Posts

- 1. Sign Posts and Hardware: As shown on the Plans and specified in Section 56-4, "Roadside Signs," of the Caltrans Standard Specifications.

Execution

A. General

1. Notify Underground Service Alert (USA) at 1-800-227-2600 at least 48 hours before beginning excavation work and have it locate and mark the facilities within the area of excavation. Notify utility companies which do not participate in USA which have underground facilities within the limits of work before beginning excavation work in accordance with each utility's notification requirements and have them locate and mark the facilities within the area of excavation. Keep marking current in accordance with the requirements of USA and other utility companies.

B. Remove Roadside Sign

1. Existing roadside signs and sign posts shall be removed as shown on the plans. Contractor shall coordinate signs to be salvaged with the Engineer. Contractor shall dispose of all roadside signs that are not to be relocated or salvaged at the Contractor's expense.
2. Existing roadside signs 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.

C. Sign Installation

1. Contractor shall provide and install roadside signs at locations shown on the Plans.
2. The Contractor shall install new and relocated roadside signs on new posts and with new hardware and footings as detailed on the plans.
3. Installation of signs shall comply with Section 56-4, "Roadside Signs," of the Standard Specifications.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.13 TRAFFIC LOOP DETECTORS-- This Section includes requirements for "Loop Detectors." Loop detectors for inductive detector loop installation shall conform to the provisions in Section 86-5, "Detectors," of the Standard Specifications and these Special Provisions.

- A. Slots in asphalt concrete pavement surface shall be filled with "Hot-Melt Rubberized Asphalt Sealant" sealant per Section 86-5.01A(3), "Installation Details."
- B. If an asphalt overlay is anticipated, an emulsified asphalt sealant shall be used. In no case shall the emulsified asphalt sealant be used on the surface of the final lift of asphalt.
- C. Detector loop configuration and location shall be as approved by the Engineer. The front loop shall be a Type D, capable of detecting bikes.
- D. Loop wire shall be IMSA Type 2 and loop detector lead-in cable shall be Type B
 1. The traffic loop homeruns shall be twisted then spliced to the lead in cable in the pull boxes. All Splices shall be performed in the pull box made using Burndy "C" taps after striping. The methodology shall follow the steps below:
 - a. Solder using rosin core 60/40(tin to lead ratio) solder. The heat source shall be without flame.

- b. The splice shall be completely covered with Performix brand or equal "Liquid Tape", dielectric brush on liquid electrical tape rated at 1200volts/mil per coat, rubberized that will not harden or unravel.
 - c. Apply minimum 2 layers, ½ lapped, electrical liner-less rubberized splicing tape 3M 130C or equal.
 - d. Apply minimum 4 layers, ½ lapped polyvinyl tape, 3M 33+ or equal.
 - e. Cover entire splice with electrical insulating coating and allow to dry, see above.
- E. Loop lead-in cable from the first pull box to the controller cabinet shall be tagged with the identity of all conductor loops connected to the circuit.
- F. Each loop shall megger 2000 mega-ohms or greater.
- G. Loop detectors shall be installed at locations approved by the Engineer.

Measurement and Payment- Full compensation for conforming to the provisions of this article shall be considered as included in the various contract items, and no additional allowance will be made therefore.

10-2.14 CONDUIT-- Electrical conduits shall conform to the provisions in Section 86-2.05, "Conduit," of the Standard Specifications and these Special Provisions.

A. Materials

1. All Conduits shall be Polyvinyl Chloride (PVC), Schedule 80 with rigid steel sweeps. With the exception of bends to and from pull boxes, the conduit shall run straight and true so that cable pulling forces are minimized.
2. Insulated bonding bushings will be required on metal conduit. All nonmetallic conduits shall have a No. 8 stranded (with green insulation) copper bonded/grounding wire. These bonding/grounding wires shall be connected in the pull box with cable connectors meeting Caltrans specifications.
3. Conduits into pull boxes and pole foundations shall be rigid metal and have 90-degree sweeps. Plastic pulling bells shall be installed on all conduit ends before conductors are pulled through the conduits.

B. Installation

1. After conductors have been installed, the ends of conduits terminating in pull boxes will be sealed with an approved type of sealing compound.
2. All conduits shall be installed below the existing AC pavement regardless of the depth of the existing AC pavement. All conduits shall be installed at a minimum depth of twenty-four (24) inches, measured from top of conduit to roadway finished grade.
3. All excavated areas in the street or sidewalk shall be completely backfilled or covered at the end of each working day and approved by the Engineer.

Measurement and Payment- Conduit shall be paid on a per linear foot (LF) and include full compensation for furnishing all labor, equipment, tools, materials, and incidentals, and for doing all work involved in furnishing and installing conduit, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-2.15 PULL BOXES-- Pull boxes shall conform to the provisions in Section 86-2.06, "Pull Boxes," of the Standard Specifications and these Special Provisions.

A. Installation

1. Pull boxes shall be placed at same elevation as adjacent standard base, service cabinet base or signal controller cabinet base if not an existing or future sidewalk area and elevation is not shown on plans. Pull boxes shall be five feet (5') from base or as shown on the plans. Pull boxes in existing sidewalk areas shall be placed at sidewalk elevation. The pull box elevation for pull boxes installed in median areas shall match the slope of the two adjacent curbs. The pull box elevation for pull boxes installed in planting areas adjacent to sidewalk or sidewalk area shall be at sidewalk grade. Pull boxes shall not be located within the limits of wheelchair ramps.
2. When pull boxes are placed in dirt and planting areas, a concrete collar shall be constructed around the pull box. The top of the pull box shall match slope of the adjacent top of curb. The surface elevation of the collar shall match the surface elevation of the pull box and slope away from the pull box at a rate of 1:50 (2%) slope. The width of the collar shall be 12" wide and 4" inch depth.
3. The Contractor shall clean all existing pull boxes entered for installation of conduit or wire of all dirt and debris. All pull box lids damaged by Contractor operations shall be replaced at his/her expense. The wiring in these pull boxes shall be neatly bundled, recoiled and reinstalled in the box. Where existing pull boxes are removed and replaced with new larger boxes the existing conduits shall be cut back. When the conduits are cut, the existing conductors must either be removed or well protected. The ends of the cut conduits must have bushings placed on them.
4. Grout in bottom of pull boxes will not be required. Pull boxes shall be set on 6 inches of crushed rock for drainage. The conduits in the pull boxes shall be placed 2" above the crushed rock.
5. Recesses for suspension of ballasts will not be required.
6. All pull boxes shall be No. 5 unless otherwise noted on the plans.

Measurement and Payment- Pull boxes shall be paid per unit (EA) and include full compensation for furnishing all labor, equipment, tools, materials, and incidentals, and for doing all work involved in furnishing and installing pull boxes, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-2.16 CONDUCTORS AND CABLES-- The work performed in connection with "Conductors and Cables" shall conform to the provisions in Section 86-2.08, "Conductors and Cables," of the Standard Specifications and shall consist of constructing to the designs and details shown on the Plans.

Measurement and Payment- Conductors and Cables shall be paid per linear foot (LF) and include full compensation for furnishing all labor, equipment, tools, materials, and incidentals, and for doing all work involved in furnishing and installing pull boxes, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-2.17 ETHERNET EXTENDER DEVICE-- This Section includes requirements for "Furnish and Install Ethernet Extender Device." The Ethernet Extender Device shall conform to the provisions in these Special Provisions.

A. General

The Contractor shall furnish and install an Actellis Networks ML 688/ML 624 (or approved equivalent).

The Contractor shall submit documentation on the proposed Ethernet Extender device to the Engineer for review and approval prior to procurement.

B. Materials

The Ethernet device shall operate with other Ethernet devices over signal interconnect cable (SIC) to extend or bridge field Ethernet networks for Intelligent Transportation Systems (ITS) and traffic signal systems. The Ethernet device shall be interoperable with industry standard Ethernet network capable equipment and rated for use in outdoor enclosures without the use of mechanical cooling. Operations of the Ethernet device shall be transparent to end users and other industry standard Ethernet network capable equipment.

The Contractor shall provide all necessary mounting hardware, power supplies, cables, and connectors required for installation of the Ethernet device in existing Type P and M cabinets.

The Ethernet device shall be rated for outdoor enclosure installation. All wiring and cabling shall be done per Caltrans Transportation Electrical Equipment Specifications (TEES) Section 1.3.13, "Wiring/Cabling/Harnesses".

Each Ethernet device shall consist of the following integrated modules:

1. A Digital Subscriber Line (DSL) Modem – The DSL modem shall manage the Ethernet network link over SIC between Ethernet device units. DSL modem shall be capable of bonding multiple pairs of SIC together to increase link bandwidth and splitting SIC pairs in 2 directions supporting linear add-drop networking. DSL modem operation shall be transparent. If an individual SIC copper pair fails, the network link shall remain in operation with proportionally lesser-bonded bandwidth without any user intervention.
2. A Managed Ethernet Switch (MES) – The MES shall provide Ethernet network access to multiple Ethernet network capable devices.
3. A Network Management System (NMS) – The NMS shall provide the operator the capability to locally or remotely configure and maintain the Ethernet device. The NMS shall allow authorized users the ability to monitor Ethernet device functions, performance and unit faults at any time. The NMS shall be password protected.

The Ethernet device shall meet the following minimum requirements:

LED Indicators	Power, Activity, Link Status, Alarm
Maximum Dimensions	3.4" (2U) x 10" x 12" (Height x Width x Depth)
Mounting	Rackmount Adapter, Shelf, Wall Capable
Operating Temperature	From -10 to 60 °C
Operating Humidity	From 10 to 90 percent (Noncondensing)
Power	Either 120 V(ac) or from 6 to 24 V(dc)
Maximum Power Consumption	75 W
Power Connection	Either 120 V(ac): 3 prong cord, at least 3 feet in length or from 6 to 24 V(dc): Terminal block and 120 V(ac) DC Class 2 transformer with 3 prong cord, at least 4 feet in length
Maximum Weight	5 pounds without mounting hardware

Grounding	Required
Operational Uptime	99.5 percent measured over a 30-day period, excluding maintenance
Certifications and Regulations	FCC Part 15 Class B, UL 60950
Minimum Number of Supported SIC Pairs per Modem Port	4
Minimum Number of Modem Ports	1
Supported Network Architecture	Point to point, Linear Add-Drop (Daisy Chain)
Minimum Supported Add-Drop Locations	6
Communication Protocol	IEEE 802.3ah 2Base-TL
Line Coding	G.SHDSL.bis line
Minimum Line Rate per SIC pair	10 Mb/s symmetrical at 1000 meters (Ideal)
Minimum Total Bandwidth with Bonded SIC Pairs	40 Mb/s at 1000 meters (Ideal)
Bonding Standard	EFM/G.bond
Modem Port Connector	RJ 45 or Terminal Block
Maximum End to End Delay between Ethernet device	6 ms
MES Port Type	Autosensing 10/100BaseT, Full Duplex/Half Duplex
Minimum Number of MES Ports	4
MES Port Connector	RJ45
Supported Standards	Dynamic Bridging: IEEE 802.1 Discovery Mechanisms: LLDP VLAN Tagging: IEEE 802.1Q Double Tagging: Q-in-Q RSTP STP IEEE: 802.1d Link Aggregation: IEEE 802.3ad Provider Bridges: IEEE 802.1ad OAM: IEEE 802.3ah clause 57 Connectivity Fault Management: IEEE 802.1ag Class of Service (CoS) 802.1p Ethernet: IEEE 802.3i Fast Ethernet: IEEE 802.3u TCP/IP, UDP/IP
Supported Management Protocols	SNMP: SNMP v1, SNMP v2c Command Line Interface: TL1 Remote Access: Telnet Time Synchronization: SNTP v3 Web Access: HTTP File Transfer: FTP
Local Management Port	EIA RS-232 via DB9
Remote Management Software	Web Browser or Microsoft Windows 2000 or newer Application

The Contractor shall furnish the following cables with appropriate connectors:

1. Twisted Wire Pair (TWP) - 300V rated, twisted pair copper, No. 22-24 AWG, Category 5e compliant (ANSI/ANSI/TIA/EIA 568B), factory made
2. Network Straight Through Data Cable
3. Ground - No. 16 min. AWG solid conductor
4. Jumper - No. 22-24 AWG insulated solid copper conductor

Each rackmount power strip shall meet the following electrical requirements:

1. A maximum rating of 15 A, 120 V(ac), 60 Hz.
2. A surge protection with UL 1449 Clamping Level of 400 V, an IEEE Let-Through Voltage rating of less than 336 V, a single-pulse energy rating of 210 J and EMI/RFI noise protection rating of 40 dB.
3. One 15 A circuit breaker.
4. One internally illuminated switch to cut off power to all outlets.
5. Six NEMA 5-15R outlets.

Each rackmount power strip shall meet the following mechanical requirements:

1. Dimensions of 2" (H) x 19" (W) x 2-4/5" (D) maximum and shall not weigh more than 4.5 pounds.
2. The front plate of the power strip shall have two cut-off EIA mounting screw holes on each end.
3. Each outlet shall have 1-1/2" minimum spacing center-to-center to its adjacent outlet.
4. The power cord shall enter from the rear with a length of 7' minimum.
5. The clearance between the power cord entrance and the nearest outlet shall be 3-3/8" minimum.
6. Both the circuit breaker and the switch shall be front-mounted.
7. Each outlet shall be rear-mounted.

The power strip shall be plugged into the non-GFCI duplex outlet normally labeled with "Controller Unit Receptacle" in the back of the Power Distribution Assembly (PDA) or as directed by the Engineer. The power strip shall be mounted on the rear of the standard EIA-310 rack cage and across the two vertical back rails with four stainless steel EIA mounting screws, two on each side or as directed by the Engineer. The power strip shall not hinder the accessibility to the back of all existing electrical equipment. All power chords for permanently field installed electrical equipment with exception of a Model 170 or 2070 controller shall be plugged into the power strip.

The Contractor shall perform site analysis and provide a written report to the Ethernet device manufacturer and the Engineer. The site analysis shall, at a minimum, indicate the potential maximum line rate per SIC pair between connected Ethernet device and any performance and uptime altering abnormalities in the existing SIC. For existing SIC, in the event the existing SIC is found to be unusable or unable to support 25 percent of the minimum line rate per SIC pair, the Engineer may choose to use an alternate SIC routing. The Engineer will make final determination of all SIC to be connected to Ethernet device.

The Contractor shall provide at least twenty-one (21) days written notice to the Engineer before beginning installation of the Ethernet device. The Contractor shall securely mount the adapter and power strip inside existing cabinets. The Contractor shall install the Ethernet device inside the rackmount adapter (if applicable), and make all wiring connections as shown on the plans and as directed by the Engineer. If

existing cabinets contain equipment prohibiting the installation of the rackmount adapter, the option of wall or shelf mounting is allowed per Engineer's approval.

The Contractor shall configure the Ethernet device under the supervision of the manufacturer's representative. Configuration shall include programming of all parameters to make the Ethernet device operational and capable of transmitting and receiving data to and from adaptive system processor devices via existing SIC at the completion of all work shown on the plans and described specified in these technical specifications. The Contractor shall provide one set of documents detailing the parameters configured and Ethernet device related wiring per Ethernet device installed.

The Contractor shall conduct performance testing to show that the devices operate per these technical specifications. The Contractor shall provide a test plan indicating proposed dates, duration and methods of the testing. The Contractor shall collect and submit the data to the Engineer. If required by the Engineer, the data shall be collected in the presence of the Engineer. Each Ethernet device shall be shown to be able to:

1. Sustain data transfer between connected Ethernet device at the line rate per SIC pair as indicated in the initial site analysis.
2. Operate without any unit, power and communication faults or alarms for 14 days. Faults and alarms shall be explained to the Engineer.
3. Conform to the requirements as described specified in these special provisions.

The Engineer will review the accuracy data findings and accept or reject the results within 21 days.

The Contractor shall provide a minimum of 4 hours of training by a certified manufacturer's representative for up to 15 persons selected by the Engineer. The content of the training shall include instructions on how to configure and maintain an Ethernet device. The Contractor shall provide materials and equipment for the training, including one set of user manuals per person. The Contractor shall give the Engineer 15 days written notice prior to the training. The Engineer and the Contractor shall mutually agree on the date, time, and location of the training.

Measurement and Payment

Ethernet Extender Device shall be paid per each unit (EA). This shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnish and installation of an Ethernet Extender Device, mounting hardware, cabling, training and testing as shown on the plans, specified in the Caltrans Standard Specifications and these technical specifications, and as directed by the Engineer.

10-2.18 CAMERA MOUNTING HARDWARE-- This Section includes requirements for "Furnish and Install Camera Mounting Hardware." The camera mounting hardware shall conform to the provisions in these Special Provisions.

A. General

1. The Contractor shall furnish and install all camera mounting hardware for mounting the adaptive signal system cameras on existing traffic signal and luminaire mast arms.

B. Materials

1. Mast Arm Applications
 - Pelco Astro-brac clamp, part no. AB-3009 (or approved equivalent)
 - Pelco Astro-brac poles, part no. AB-2003 (or approved equivalent)
 - Pelco camera bracket, part no. SH-0514 (or approved equivalent)
2. Luminaire Arm Applications
 - Pelco luminaires mounting bracket, part no. SH-0509 (or approved equivalent)
 - Pelco camera bracket, part no. SH-0514 (or approved equivalent)

- Pelco Type 201 stainless steel banding, part no. US-8122-06 (or approved equivalent)
- Pelco Type 201 stainless steel buckles, part no. US-8122-56 (or approved equivalent)
- Pelco band tool, part no. US-8120-01 (or approved equivalent)

Measurement and Payment

Camera Mounting Hardware shall be measured by each unit (EA). This shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals required for mounting the adaptive system cameras, complete and in place, as shown on the plans, as specified in these Special Provisions, and as directed by the Engineer.

10-2.19 ADAPTIVE TRAFFIC SIGNAL SYSTEM-- The work described herein consists of furnishing and installing the adaptive system equipment per the plans, as described in these technical specifications and the functional and performance specifications of the City of Capitola's pre-approved adaptive signal system vendor, Rhythm Engineering.

A. General

For items identified as part of Rhythm Engineering’s InSync Adaptive System in the plans and these specifications, contact the following Rhythm Engineering representative:

Jesse Manning, Vice President of Business Development
jesse.manning@rhythmtraffic.com
 11228 Thompson Avenue, Lenexa, KS 66219
 913-227-0603

Cameras purchased from Rhythm Engineering will be installed at the following locations:

Location	No. of fixed IP cameras	No. of 360° IP cameras
41st Avenue/ Jade Street	4	
41st Avenue/Capitola Road	4	
41st Avenue/Capitola Mall Road		1
41st Avenue/Clares Street		1

B. Materials

The following components are included as part of the adaptive system equipment. The Contractor shall purchase these components from the adaptive system vendor, Rhythm Engineering:

- Fixed IP Camera/Camera enclosure – IP addressable Samsung SNZ-5200 digital IP camera with lens (or approved equal) and die-cast aluminum enclosure with ABS sunshield. These items shall be purchased from adaptive system vendor, installed by the Contractor, and configured by the adaptive system vendor.
- 360° IP Camera/Camera enclosure - IP addressable Samsung SNB-5000 digital IP camera with ImmerVision panomorph lens (or approved equal) in a sealed weatherproof enclosure. These items shall be purchased from adaptive system vendor, installed by the Contractor, and configured by the adaptive system vendor.
- Equipment panel – panel which includes 8-port switch, lightning arrestors for camera cables, termination points for camera power and communication, 24V AC transformer, and power supply from the cabinet. These items shall be purchased from adaptive system vendor, installed by the Contractor, and configured by the adaptive system vendor.
- Adaptive system processor – adaptive system processors shall be purchased from adaptive system vendor, installed by the Contractor, and configured by the adaptive system vendor.

- DIN relay – the DIN relay switch shall be purchased from the adaptive system vendor, installed by the Contractor, and configured by the adaptive system vendor.
- Intercept module – intercept module shall be purchased from the adaptive system vendor, installed by the Contractor, and configured by the adaptive system vendor. Intercept modules shall only be installed at City of Stockton intersections.
- Cables – Contractor shall purchase ABC Y-cables and C1 Y-cables from adaptive system vendor, and install all cables necessary for a fully functional adaptive system.

IP Camera Components

The IP cameras shall be installed on existing traffic signal and luminaire mast arms as shown on the plans. The IP cameras shall be connected to the adaptive system equipment panel via a Contractor-furnished Category 5E cable and 3 Contractor-furnished #14 AWG conductors. The camera communications and power cables shall be terminated at the equipment panel. The power and communication cables shall be pulled from the traffic signal controller cabinet to the specified camera location. The Contractor shall provide 10 feet of slack at the cabinet and 5 feet of slack at each camera. The following color-coding scheme shall be used to distinguish camera cables:

- Northbound, blue
- Southbound, red
- Eastbound, yellow
- Westbound, orange

Each IP camera shall have a designated IP address which identifies its position (NB, SB, EB, WB), and be labeled accordingly.

The camera enclosure shall be made from die-cast aluminum and include an ABS sunshield, internal heater near the front, three cable glands at the bottom, and be waterproof when closed. The cable glands shall be sealed with silicone gel sealant on the inside of the enclosure after mounting. Silicone gel sealant shall be applied around the wire at the cable gland once power and Category 5E terminations are made inside the enclosure.

Traffic Cabinet Components

The Contractor shall furnish and install the adaptive system equipment panel, adaptive system processor, adaptive system intercept module, and adaptive system DIN relay switch, securely inside each traffic signal cabinet. All adaptive system in-cabinet elements shall be installed prior to cabinet delivery for testing to City of Stockton.

Contractor shall purchase four (4) pre-configured adaptive system processors with pedestrian optimization feature from the adaptive system vendor, and install the processors at the following intersections:

- 41st Avenue/Jade Street
- 41st Avenue/Capitola Road
- 41st Avenue/Capitola Mall Road
- 41st Avenue/Clares Street

Upon final installation of all adaptive system field equipment, the adaptive system vendor shall be responsible for configuration and integration of the adaptive system.

Measurement and Payment

Adaptive Traffic Signal System shall be paid by lump sum (LS). This shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals required for doing all work associated

with furnishing, delivering, configuring, testing, installing the adaptive system and coordinating with the adaptive system vendor for a complete and functional adaptive traffic signal system, as shown on the plans, as specified in these Special Provisions, and as directed by the Engineer.

10-2.20 WIRELESS MODEM-- The work described herein consists of furnishing and installing a wireless modem per the project plans, as described in these technical specifications and the functional and performance specifications of the City of Capitola. The wireless modem shall be configured with the following; modem, power supply, serial communication cable (Type D), and an antenna.

All modems shall be configurable remotely through the wireless network and through the modem serial port. The Contract shall configure all modems prior to acceptance. All modems shall be complete with all cables, conductors, hardware, antenna and other equipment as required to make the system completely operational.

Contractor shall provide the manufacturer written warranty against defects in materials and workmanship for modems and power supplies for a period of 12 months after installation. All warranty documentation shall be provided to the Engineer prior to installation.

Measurement and Payment

Wireless Modem shall be paid by each (EA). This shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals required for doing all work associated with furnishing, delivering, configuring, testing, and installing the wireless modem in the field cabinet, as well as in City Hall.

10-2.21 ESTABLISH 4G CELLULAR WIRELESS CONNECTION-- The work described herein consists of coordinating with the City of Capitola and the City's cellular communications provider. Contractor shall work with the City of Capitola to set up a 4G cellular communication link to the 41st Avenue/Clares Street traffic signal controller cabinet. Contractor shall work to establish the cellular connection, as well as configure any equipment furnished and installed by the Contractor in order to operate properly on the newly-established cellular communications network. Contractor shall begin the process by reaching out to the City and coordinating with the City on the process for obtaining cellular communications to the field.

Contractor shall pay all setup fees and coordinate directly with cellular communications provider throughout the process. Contractor shall pay first thirty-six (36) months of service, after which the monthly service fees shall be transferred to the City of Capitola beginning with month thirty-seven (37) of service.

Measurement and Payment

Establish 4G Cellular Wireless Connection shall be paid by lump sum (LS). This shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals required for doing all work associated with coordinating, delivering, configuring, testing, installing the 4G cellular connection.