



Contract Documents for

LAS PALMAS POOL IMPROVEMENTS

CAPITAL IMPROVEMENT PROJECT NO. 22-01

BID SUBMISSION DEADLINE:

Thursday, July 14, 2022
2:00 P.M.

ELECTRONIC SUBMISSION AT:

<http://www.planetbids.com/portal/portal.cfm?CompanyID=24103>

This project is funded by City funds.

This is a prevailing wage project under the laws of the state of California.

The City Engineer adopts these plans and the accompanying specifications and details on behalf of the City Council of the City of National City.



Roberto Yano, PE, City Engineer

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NOTICE INVITING BIDS

NATIONAL CITY BOULEVARD BIKEWAY

CIP NO. 19-18

PUBLIC NOTICE IS HEREBY GIVEN that the City of National City, hereinafter referred to as the Agency, invites electronic bids for the above stated Project and will receive such bids through the vendor PlanetBids up to the hour of 5:00 P.M., on Thursday, July 14, 2022.

The National City Planet Bids link for downloading the documents for the project is:
“<http://www.planetbids.com/portal/portal.cfm?CompanyID=24103>”.

The general scope of work: New swimming pool design per plan. New plaster and ceramic tile at swimming pool and activity pool. New swimming pool concrete and anchorage to match existing slopes to perimeter drains. Provide new deck drainage piping to existing point of connection. Remove and replace existing perimeter fence with new, per plans. Replace mechanical room equipment per plan. All other items as required to provide a completely operational aquatic facility. Project is located at 1800 E. 22nd Street, National City, CA 91950.

In conformance with State of California Assembly Bill 2036 complete bid and contract document sets will be available electronically at no cost only at nationalcityca.gov where a link to Planetbids is provided. It shall be the responsibility of the prospective bidders to download and print the bid and contract documents for review and bid. Bidders shall also check PlanetBids via the link provided at nationalcityca.gov for addendums prior to bidding.

The Agency does not warrant, represent, or guarantee the accuracy, completeness, or adequacy of information provided from any third party source. The Agency shall not be responsible or liable in any way whatsoever for any loss or damages of whatever kind, nature, or scope, including, but not limited to, time, money or goodwill arising from errors, inaccuracies, or omissions in any documents and/or information retrieved from any third part source.

A non-mandatory Pre-Bid Conference will be held on Wednesday, July 6, 2022 at 10:00 A.M. via Zoom conference call. The link to access the Pre-Bid meeting meeting is:

<https://us06web.zoom.us/j/87105447768?pwd=WWJwVlBaYTFmUWNPdmpINDF2TGZVwz09>
(US) +1 720 707 2699 (Meeting ID: 871 0544 7768; Passcode: 515400

A bid must be submitted with a fully executed satisfactory bid bond by an acceptable surety in an amount equal to ten percent (10%) of the total aggregate bid amount.

The Contractor to whom the Contract is awarded, and any subcontractor under such Contractor, shall hereby ensure that minority and women business enterprises will be afforded full opportunity to submit bids for subcontracts. Further, there shall be no discrimination in employment practices on the basis of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, age, or sex in compliance with Government Code 12990.

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Pursuant to California Public Contract Code Section 22300, at the expense of the Contractor to whom the contract is awarded, acceptable securities (securities listed in Government Code Section 16430, bank or savings and loan, certificates of deposit, interest bearing demand deposit accounts or standby letters of credit) equivalent to the retention amount shall be permitted in substitution of money withheld by the Agency to ensure performance under the Contract. Such securities shall be deposited with the Agency or with a California or Federally chartered bank or savings and loan as escrow agent who shall return such securities, along with any interest thereon, to the Contractor upon satisfactory completion and acceptance of the Work by the Agency.

In accordance with the provisions of the California Labor Code, contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public works project. Any contract on a public works contract entered into between a contractor and a debarred subcontractor is void as a matter of law. Any public money that is paid or may have been paid to a debarred subcontractor by a contractor on the Project shall be returned to the Agency. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

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

The Agency reserves the right to reject any or all bids, to waive any irregularity, and to take all bids under advisement for a period of sixty (60) calendar days after the date the bids are publicly opened. All costs incurred by bidders as a result of preparing bids under this Notice Inviting Bids shall be the sole responsibility of each bidder. This Notice Inviting Bids neither creates nor imposes any obligation upon the Agency to enter into a contract.

Liquidated damages for this Project are required by law and will be in accordance with the Special Provisions.

Bidders must possess a valid State of California "A" general contractor's license with a "C-53" specialty contractor's license, or "C-53" contractor's specialty license or list a subcontractor with a "C-53" specialty contractor's license listed to perform the work items as required herein.

Estimated construction cost: \$2,480,000

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INSTRUCTIONS TO BIDDERS

1. AVAILABILITY OF CONTRACT DOCUMENTS

Bid, contract document and plan sets will be available electronically, at no cost, at **nationalcityca.gov** where a link to Planetbids.com is provided or more specifically at **<http://www.planetbids.com /portal/portal.cfm?CompanyID=24103>**. No paper bid sets will be available for purchase. The official version of all Contract Documents, which include plans, Instructions to Bidders, General Conditions, Special Provisions, bid documents, sample contract documents, certified payroll documents, close-out documents, any other appendices, attachments or exhibits (if any), and addendum (if any) shall be on the Planetbids' website. Referenced standards, codes, regulations and other materials may not be available on the website. It shall be the Bidder's responsibility to find sources for all such references.

The City of National City (hereinafter, the "Agency"), does not warrant, represent, or guarantee the accuracy, completeness, or adequacy of information provided from any third party source. The Agency shall not be responsible or liable in any way whatsoever for any loss or damages of whatever kind, nature, or scope, including, but not limited to, time, money or goodwill arising from errors, inaccuracies, or omissions in any documents and/or information retrieved from any third party source.

The Agency does not assume any liability or responsibility based on any defective or incomplete copying, excerpting, scanning, faxing, downloading or printing of the Bid Documents.

2. EXAMINATION OF CONTRACT DOCUMENTS AND WORK SITE

Bidders shall be solely responsible for examining the Site and the Contract Documents, including any addenda issued during the bidding period, and for informing themselves with respect to local labor availability, means of transportation, necessity for security, laws and codes, local permit requirements, wage scales, local tax structure, contractors' licensing requirements, availability of required insurance, and other factors that could affect the Work. Bidders are responsible for consulting the standards referenced in the Contract Documents. Bidders shall be solely responsible for their failure to examine the documents and inform themselves, shall proceed at their sole risk, and no relief for error or omission will be given except as required under State law.

Each prospective Bidder is responsible for fully acquainting itself with conditions of the Site (which may include more than one location) and those relating to construction of the Work, fully understanding the facilities, difficulties and restrictions which may affect the cost or effort required to complete the Work. To this end, a Pre-Bid Conference and Site Walk may be held on the date(s) and time(s) indicated in the Notice Inviting Bids. Absence of a pre-bid conference or Agency led site walk does not relieve the Bidder from their obligation of examining all sites in such a manner that will provide the Bidder with all the site information necessary to complete a competitive and all inclusive bid.

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By submitting a bid the Bidder certifies that:

- a) The Bidder has carefully examined the Project Site, has taken steps to obtain all information concerning site conditions and is familiar with all conditions (including information that the Agency made available to all Bidders during the bid process, costs and physical conditions) affecting the performance of the Work, and
- b) The Bidder has carefully examined the Bid and Contract Documents and the Bid and Contract Documents contain no significant error, inconsistency or omission and the Bidder has requested additional information and clarification from the Agency in writing with respect to any such error, inconsistency or mission and has received such information and clarification from the Agency, and
- c) The Bid and Contract Documents are sufficient to have enabled the Bidder to determine the cost and duration of the Work and to enter into the Contract and the Bid and Contract Documents are sufficient to construct the Work in accordance with all applicable laws, statutes, buildings codes and regulations and otherwise to fulfill the Bidder's obligations under the Contract, and
- d) The Bidder has requested each Subcontractor to carefully examine the Project Site, information concerning Site conditions, and Bid and Contract Documents with respect to the portion of the Work to be performed by such Subcontractor and that each Subcontractor has certified to the Bidder that such Subcontractor requires no additional information or clarification to perform the portion of the Work to be performed by such Subcontractor except as may have been requested in writing by the Bidder and to which the Agency has responded.
- e) That any deficiencies, omissions or errors remaining in the Contract Documents at bid time have been considered in Bidder's costs and that Bidder will build and deliver the project as defined in the Contract Documents as whole and complete project.

3. ESTIMATED QUANTITIES OF WORK OR MATERIAL

The quantities of work or material stated in the unit price items of the Bidding Sheet(s) are supplied only to give an indication of the general scope of work. The Agency does not expressly or by implication agree that the actual amount of work or material will correspond therewith. The Agency reserves the right to increase or decrease the quantity amount of any unit price item of the work by an amount up to and including 25 percent of any bid item(s), or to omit portions of such work as may be deemed necessary or expedient by the Engineer without a change in the unit price. See General Provisions and Specifications for exceptions to the 25% limit, if applicable.

The Agency reserves the right to eliminate any item of work in its entirety in accordance with the General Provisions.

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4. INTERPRETATION OF CONTRACT DOCUMENTS & REQUESTS FOR CLARIFICATION

The Bidder shall interpret all of the Contract Documents as a whole and inseparable. The Contract Documents are complementary and cooperative. Anything specified in the written documents and not shown on the plans, or shown on the plans and not specified in the documents shall be as though shown or specified in both.

Discrepancies, omissions and errors in any part of the Bid and Contract Documents shall immediately be brought to the attention of the Agency by submission of a written Request for Clarification. Any Request for Clarification must be sent via e-mail to Luca Zappiello at LZappiello@nationalcityca.gov ("cc" to Sean Gill at sgill@iccsinc.net) no later than five (5) working days prior to the time of the bid opening. The Bidder shall be responsible for the prompt delivery of the request. The Agency may or may not respond to Bidder's requests for clarifications.

When bidding the project the Bidder shall include all costs for a complete and turn-key project. If there is no line item for a particular item shown on the plans or details, described in the specifications or required for a complete turn-key project the Bidder shall include all such costs in the most appropriate line item. The winning Bidder shall provide a schedule of values after contract award to indicate where items for which there is no line item have been included into designated line items for processing progress payments. If no schedule of values is provided the payments will be made in accordance with the Engineer's determination as to percent or quantity of work complete.

5. ADDENDA

The Agency reserves the right to revise the Contract Documents prior to the bid opening date. Revisions, if any, shall be made by written addenda. Any addenda item that is considered a material change shall be issued no later than 72 hours prior to the date and time fixed for the opening of bids. Pursuant to Public Contract Code section 4104.5, the Agency will extend the deadline for submission of bids if the Agency issues an Addendum that includes material changes to the Work less than 72 hours prior to the deadline for submission of bids. The Agency will determine, at its sole discretion, whether an Addendum warrants postponement of the bid submission date.

Failure of any Bidder to receive any addenda shall not relieve such Bidder from any obligations imposed by such addenda. All addenda so issued shall become part of the Contract Documents. Failure by the Bidder to include any addenda in its bid prices may not be a valid reason for the Bidder to withdraw its bid.

6. ADDITIVE, ALTERNATE AND ADDITIVE ALTERNATE BIDS

If an additive, alternate or additive/alternate bids items are called for in the Contract Documents, the sum of the base bid and all additive, alternate and additive/alternate bids, if any, shall be

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used to compare all bids to determine the lowest responsive bid. The time required for completion of the additive or alternate bid items has been factored into the Contract Time and no additional time will be allowed for performing any of the alternate bid items unless the Contract Documents address this issue specifically and allow for more or less time based on the additive and/or alternative bids. Regardless of whether the additive or alternates bid items will be considered in determining the low bid, the Agency may elect to include any or none of the additive or alternate bid items, or to otherwise remove certain work from the scope of work. Accordingly, each Bidder must ensure that each bid item contains a proportionate share of profit, overhead and other costs and expenses, which will be incurred by the Bidder for the project.

7. WORK BY BIDDER'S OWN FORCES

It is the intention and requirement of the Agency to award a contract only to a Bidder who will perform with the Bidder's own forces (those who are in direct employment of the Bidder's organization) at least 50 percent (50%) of the work, exclusive of items designated on the Bid Schedule by the Agency as specialty items, if any. The percentage of work which will not be performed by a Bidder's own forces will be determined by adding the dollar value of all contracts shown on the List of Subcontractors in the Bid Forms (excluding the dollar amount of the specialty bid items), and dividing this total by the Bidder's Total Bid Amount (excluding the dollar amount of Specialty bid items). Specialty items will be designated on the line item bid form with an "(S)" following the description of the item.

The requirement for the Contractor to perform at least 50% of the contract work with its own forces will be waived for contracts where a "B" or Specialty License is required for the prime contractor.

8. LISTING OF SUBCONTRACTORS

The Bidder shall comply with the Subletting and Subcontracting Fair Practices Act, California Public Contract Code Section 4100 et seq. ("Subcontracting Act"). Any references in these Bid and Contract Documents to the requirements of the Subcontracting Act are for the Bidder's reference, and shall not limit the Contractor's obligations under law.

The Bidder shall set forth in the List of Subcontractors, of the Bid Forms:

- a) The name, address, and phone number of the place of business of each subcontractor who will perform work, provide labor, or render service to the Bidder on or about the construction of the Work for this Project, or a subcontractor licensed by the State of California who, under subcontract to the Bidder, specially fabricates and installs a portion of the work or improvement according to these Bid and Contract Documents, in an amount in excess of one-half ($\frac{1}{2}$) of one percent (1%) of the Bidder's total bid or, in the case of bids or offers for the construction of streets or highways, including bridges, in excess of one-half ($\frac{1}{2}$) of one percent (1%) of the Bidder's total bid or ten thousand dollars (\$10,000), whichever is greater.

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- b) The portion of the work that each listed subcontractor described in item (a) above shall perform.

The Bidder shall list only one subcontractor for each portion of the Work as is defined by the Bidder in the List of Subcontractors section of the Bid Schedule. Partial submittal or failure to include all required information regarding subcontractors may preclude the full analysis and review of the Bid and may be cause to disqualify the Bid as non-responsive.

Contractor shall submit a copy of all listed subcontractor(s)' bids when requested by the Agency as a condition precedent to an award or payment.

The Contractor shall submit a list of all potential unlisted subcontractors that may be used on the project, whose contract amount is less than $\frac{1}{2}$ of 1 % of the total contract amount or \$10,000, whichever is greater, at the preconstruction meeting. The Contractor must submit the names of any subcontractors whose contract amount is less than $\frac{1}{2}$ of 1 % of the total contract amount or \$10,000, whichever is greater, that was not provided at the preconstruction meeting at least 72 hours in advance on any work.

9. DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

In accordance with the provisions of the California Labor Code, Contractors and subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform to work on a public pursuant to Section 1777.1 or Section 1777.7 of the California Labor Code. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid to a debarred subcontractor by the Contractor shall be returned to the Agency. The successful Bidder, as Contractor, shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

10. BID GUARANTEE

Bids shall be submitted with a bid bond, payable to the City of National City and executed by the Bidder as Principal and surety as Obligor, in an amount equal to at least ten percent (10%) of the total bid price. A bid bond must be on the form provided and the surety insurer shall be California admitted surety insurer, as defined in Code of Civil Procedure Section 995.120; personal sureties and unregistered surety companies are unacceptable. Said bond shall be given as a guarantee that the Bidder will enter a contract if awarded the work, and shall provide the required payment and performance bonds and insurance certificates and in case of within ten (10) working days after being requested to do so by the Agency. Refusal or failure to enter into said contract and provide the required documents may be result in forfeiture of the Bidder's bid guarantee (bond) to the Agency and the Agency may award the contract to another Bidder, or may call for new bids. A bid received and not accompanied by such a bond will be rejected as non-responsive.

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The Principal and Obligor agree and certify by submitting a bid and bid bond that any copy of the bid bond shall have the full force and effect as the original.

11. PREVAILING WAGES

For all prevailing wage requirements the Bidder shall refer to Section 7-2 LABOR of the Special Provisions, and Appendix 2, the State of California, Department of Industrial Relations and the Federal-Bacon Act if federally funded.

The Agency has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages in the locality in which this work is to be performed for each craft or type of worker needed to execute the Contract. These rates are on file and available at 1243 National City Boulevard, National City, California 91950 or may be obtained online at <http://www.dir.ca.gov/dlsr>, and available in Appendix 2 of the bid documents. Bidders are advised that a copy of these rates must be posted by the successful Bidder at the job site(s).

If the Work involves federal funds or otherwise requires compliance with the Davis-Bacon Fair Labor Standards Act, the Contractor and all its subcontractors shall pay the higher of the state or federal prevailing wage rates and comply with all Davis-Bacon Act requirements.

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.

12. COMPLETION OF BID FORMS

Bidders shall only use the electronic bid schedule and complete forms provided on-line; print, complete and provide hard copies of all Bid Documents presented on Planetbids.com and submit clear and legible forms

Bidders shall fill in all blank spaces (including inserting "N/A" [not applicable] where appropriate) and initial all interlineations, alterations, or erasures to the Bid Forms. Bidders shall not delete, modify, nor supplement the printed matter on the Bid Forms nor make substitutions thereon. USE OF A CLEARLY LEGIBLE AND SCANABLE COLOR IS REQUIRED (black or deep blue). Deviations in any of the Bid Forms may be cause for rejecting a bid by the Agency as non-responsive.

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The signature of all persons signing the bid proposal shall be in longhand by an individual clearly authorized to bind the Bidder's company. The Bidder shall provide evidence that the individual(s) signing the Bid Forms are authorized to bind the legal entity of the Bidder. The notarization does not constitute such proof unless the legal entity of the Bidder is an individual.

13. AFTER BID DOCUMENTS

The two apparent low bidders shall complete and deliver all "Post Bid Documents" to the City of National City, Engineering Department, attention: Luca Zappiello, no later than two business days after the bid opening. Failure to deliver the Post Bid Documents within the prescribed time period may disqualify bidder as non-responsive at the discretion of the City.

14. NOTARY PUBLIC

All signatures on the bid bond and other forms as indicated shall be notarized.

15. PENALTY FOR COLLUSION

If at any time it is found that the person, firm, or corporation to whom the Contract has been awarded, has, in presenting any bid or bids, colluded with any other party or parties, then the Contract so awarded shall be null and void, and the Agency may advertise for new bids and contract for such work. The Contractor and the Contractor's sureties shall be liable to the Agency for all loss or damages suffered by the Agency.

16. IRAN CONTRACTING ACT CERTIFICATION

Each bidder shall submit the certification required by the Iran Contracting Act of 2010, Public Contract Code section 2200 *et seq.* with its bid. The certification is included in the Bid Documents.

17. DEPARTMENT OF INDUSTRIAL RELATIONS REGISTRATION CERTIFICATION FOR PUBLIC WORKS CONTRACTOR

The Bidder shall sign and submit with its Bid the Public Works Contractor Registration Certification on the form provided, attesting to the facts contained therein. Failure to submit

18. THIS FORM MAY RENDER THE BID NON-RESPONSIVE AT THE DISCRETION OF THE CITY. SUBCONTRACTOR BIDS

Bidders shall provide a copy of all bids by subcontractors listed in the bid documents when requested by the Agency. Failure to provide the subcontractor's bids within 5 working days of Agency request may be grounds for finding a bid non-responsive or withholding of payment.

19. PERFORMANCE BOND AND PAYMENT (LABOR AND MATERIALS) BOND REQUIREMENTS

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The successful bidder shall deliver to the Agency two fully executed, identical counterparts of the Performance Bond and Payment (Labor and Materials) Bond in the form supplied by the Agency and included in the Contract Documents. Each bond shall be for one hundred percent (100%) of the Contract Price. The surety insurer shall be admitted to transact surety business in the State of California, in accordance with Code of Civil Procedure section 995.120. Personal sureties and unregistered surety companies are unacceptable. Failure to furnish a bond within the time requirements may result in the forfeiture of the Bid Guarantee at the sole discretion of Agency.

20. INSURANCE REQUIREMENTS

The successful bidder shall procure and maintain insurance in the form and in the amount specified in the Contract Documents and provide the Agency with the required documentation and certificates of insurance.

21. WORKERS COMPENSATION

Each bidder shall submit the Contractor's Certificate Regarding Workers' Compensation form and maintain the required Workers' Compensation Insurance throughout the project.

22. REQUEST FOR SUBSTITUTIONS

The successful bidder shall comply with the substitution request procedures set forth in the Bid and Contract Documents. Any deadlines for substitution requests that occur prior to the bid opening date are set forth in the General Provisions.

23. SUBMISSION OF BIDS

It is the sole responsibility of the Bidder to see that their bid is submitted electronically prior to the stated deadline. Bidders can modify their bids electronically through Planetbids.com at any time prior to the bid submission deadline. Bidders will not be able to electronically submit or modify their bids after the stated deadline. No oral, written or telegraphic submissions or modifications will be considered.

24. OPENING OF BIDS

Bids are protected from viewing by anyone prior to the bid submission deadline. Bids shall be viewed by the Agency after the submission deadline and made available for public viewing on the Planetbids.com website.

25. BID RESULTS

Bids shall be posted electronically at Planetbids.com. Final determination of the lowest responsive and responsible bidder shall be posted at nationalcityca.gov for public viewing.

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26. QUALIFYING BIDS AND BIDDERS

The Agency shall review all bids for responsiveness to these Instructions to Bidders, Bid Forms, Contract Documents and applicable law and compare the bids to the Engineer's Estimate for value and to verify a balanced bid, (see section 2-1.3 for additional information).

After the lowest monetary and responsive Bidder has been determined, the Agency will review the Bidder in order to determine whether it is the lowest responsible Bidder. The term "responsible" is defined by California law, but generally means that the Bidder is able to demonstrate: (1) the capacity to perform the Work required by these Contract Documents with respect to financial strength, resources available, and experience; and (2) its integrity and trustworthiness to complete performance of the Work in accordance with the Contract Documents, (see section 2-1.3 for additional information).

The Agency will make its determination of responsibility based upon information submitted by the Bidder contained in the Bid Forms and interviews with the Contractor previous agencies, clients, design professionals, or subcontractors with whom the Bidder has worked.

27. WITHDRAWAL OF BID

Any proposal may be withdrawn prior to the date and hour set forth in the Notice Inviting Bids. If for some reason a bidder is unable to withdraw their bid they may do so in writing to City of National City provided that notice to withdraw the bid is executed by the Bidder or its duly authorized representative and is delivered to the Agency at 1243 National City Boulevard, National City, California 91950 before the stated bid deadline. The withdrawal of a bid shall not prejudice the right of a Bidder to file a new bid. Any request to withdraw a bid after bid opening must be made in accordance with Public Contract Code section 5100 et seq. and must be submitted in writing within five (5) working days, excluding Saturdays, Sundays and State holidays, specifying in detail how the qualifying mistake was made. Whether a bid is allowed to be withdrawn under PCC section 5100 et eq. shall be at the Agency's sole discretion.

28. REJECTION OF BIDS

The Agency, in its absolute discretion, reserves the right to reject any or all bids, and to waive any informalities or minor irregularities in the Bids. Bids may be rejected if they show any alterations of form, additions not called for, conditional bids, incomplete bids, erasures or irregularities of any kind or if the supplements set forth in the bid forms are not submitted with the bid.

29. BID PROTEST PROCEDURE

Any bid protest relating to the form or content of the Bid or Contract Documents must be submitted in writing to the Agency's, Principal Engineer at least ten (10) business days before the original date set for the bid opening. Any Bidder who submits a bid without making a protest

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shall be deemed to have waived any objection to the form or content of the Bid or Contract Documents not previously stated in writing.

Submitted bids will be timely made available for review upon written request of any Bidder.

Bidders may file a "protest" of a Bid with the Agency's, Principal Engineer. The protest must:

- A. Be filed in writing not later than 5:00 p.m. on the fifth business day after the bid opening date;
- B. Clearly identify the specific alleged irregularity or other basis for the protest;
- C. Specify, in detail, the factual and legal grounds for the protest; and
- D. Include all relevant supporting documentation with the protest at time of filing.

If the protest does not meet all of these requirements, the Agency may reject it without further review.

If the protest is timely and complies with all of the above requirements, the Agency's Engineer, or other designated Agency staff member, shall review the protest, any response from the challenged Bidder, and all other relevant information. The Agency will provide a written response to the protestor.

The procedure and time limits set forth in this section are mandatory and are the sole and exclusive remedy in the event of a bid protest. Failure to comply with these procedures shall constitute a failure to exhaust administrative remedies and a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.

30. RETENTION AND SUBSTITUTION OF SECURITY

The Agency will make monthly progress payments based upon work performed in accordance with the Contract Documents. The Agency will retain five percent (5%) of all amounts due at the end of the project as retention until 30 days after filing of the Notice of Completion or as required by law. At the request and expense of the successful Bidder, the Contractor may substitute securities for the amount so retained in accordance with Public Contract Code section 22300.

31. SALES AND OTHER APPLICABLE TAXES, PERMITS, LICENSES AND FEES

Contractor and its subcontractors performing work under this Contract will be required to pay California sales tax and other applicable taxes, and to pay for permits, licenses and fees required by the agencies with authority in the jurisdiction in which the work will be located, unless otherwise expressly provided by the Contract Documents. Bidders shall include all applicable taxes and fees that are in effect or reasonably anticipated on the bid date in their bid price.

32. EXECUTION OF CONTRACT

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As required herein the successful bidder shall execute the Contract included with the bid documents in the amount determined in accordance with the Contract Documents. The Agency may require appropriate evidence that the persons executing the Contract are duly authorized to do so on the Contractor's behalf. Failure to execute the Contract in the time prescribed may result in the Bidder forfeiture of their bid bond.

SPECIAL PROVISIONS
PART ONE
GENERAL PROVISIONS

DELETE THE ENTIRE SPECIAL PROVISIONS PART ONE, GENERAL PROVISIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS ("GREENBOOK") AND CURRENT SUPPLEMENTS AND REPLACE WITH THE FOLLOWING.

SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS AND SYMBOLS

1-1 GENERAL. Unless otherwise stated, the words *directed, required, permitted, ordered, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory*, or words of like meaning, refer to actions, expressions, and prerogatives of the Engineer.

1-2 TERMS AND DEFINITIONS

Addendum - Written or graphic instrument issued prior to the opening of Bids which clarifies, corrects, or changes the Contract Documents. The term "Addendum" shall include bulletins and all other types of written notices issued to potential bidders prior to opening of the Bids.

Agency - The City of National City.

Agreed Price - The cost for new or unforeseen work, or for adjustments in the Contract Unit Price for changes in the character of the work as specified herein, established by mutual agreement between the Contractor and the Agency.

Agreement - See Contract.

Assessment Act Contract - A Contract financed by special assessments authorized under a State Act or procedural ordinance of a City or County.

Base - A layer of specified material of planned thickness placed immediately below the pavement or surfacing.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work.

Bidder - Any individual, firm, partnership, corporation, or combination thereof, submitting a Bid for the Work, acting directly or through a duly authorized representative.

Board - The officer or body constituting the awarding authority of the Agency.

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Bond - Bid, performance, or payment bond or other instrument of security.

Caltrans - The State of California Department of Transportation.

Cash Contract - A Contract financed by means other than special assessments.

Certificate of Compliance - A written document signed and submitted by a supplier or manufacturer that certifies that the material or assembled material supplied to the Work site conforms to the requirements of the Contract Documents.

Change Order - A written order to the Contractor signed by the Agency directing an addition, deletion, or revision in the Work, or an adjustment in the Contract Price or the Contract time issued after the effective date of the Contract. A Change Order may not also be signed by the Contractor.

Code - The terms *Government Code*, *Labor Code*, etc., refer to codes of the State of California.

Contract - The written agreement between the Agency and the Contractor covering the Work.

Contract Documents - The Notice Inviting Bids, Instructions to Bidders, Contract, Special Provisions, Appendices, Exhibits, Addenda, Clarifications, all documents required to be submitted at bid time, any post-bid documentation submitted prior to the Notice of Award, the Bonds, all required Permits, Plans, Standard Plans, Standard Specifications, Reference Specifications, Referenced Standard Plans, all other referenced materials, Change Orders, Bulletins and Supplemental Agreements.

Contractor - The individual, partnership, corporation, joint venture, or other legal entity having a Contract with the Agency to perform the Work. In the case of work being done under a permit issued by the Agency, the permittee shall be construed to be the Contractor. The term "prime contractor" shall mean the Contractor.

Contract Price - The total amount of money for which the Contract is awarded.

Contract Unit Price - The amount stated in the Bid for a single unit of an item of work.

County Sealer - The Sealer of Weights and Measures of the county in which the Contract is awarded.

Days - Days shall mean consecutive calendar days unless otherwise specified in the Special Provisions.

Disputed Work - Work in which the Agency and the Contractor are in disagreement.

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Electrolier - Street light assembly complete, including foundation, standard, mast arm, luminaire, etc.

Extra Work - New or unforeseen work not covered by a Contract Unit Price or Stipulated Unit Price.

Engineer - The Chief Engineer of the Agency, Director of Public Works, or other person designated by the Board, acting either directly or through authorized agents.

House Connection Sewer-A sewer, within a public street or right-of-way, proposed to connect any parcel, lot, or part of a lot with a mainline sewer.

Luminaire - The lamp housing including the optical and socket assemblies (and ballast if so specified).

Mast Arm - The structural member, or bracket, which, when mounted on a Standard, supports the luminaire.

Modification - Includes Change Orders and Supplemental Agreements. A Modification may only be issued after the effective date of the Contract.

Notice of Award - The written notice by the Agency to the successful Bidder stating that upon its compliance with the required conditions, the Agency will execute the Contract.

Notice to Proceed - A written notice given by the Agency to the Contractor fixing the date on which the Contract time will start.

Person - Any individual, firm, association, partnership, corporation, trust, joint venture, or other legal entity.

Plans - The drawings, profiles, cross sections, Standard Plans, working drawings, and shop drawings, or reproductions thereof, approved by the Engineer, which show the location, character, dimensions, or details of the Work.

Private Contract - Work subject to Agency inspection, control, and approval, involving private funds, not administered by the Agency.

Proposal - See Bid.

Reference Specifications - Those bulletins, standards, rules, methods of analysis or testing, codes, and specifications of other agencies, engineering societies, or industrial associations referred to in the Contract Documents. These shall refer to the latest edition, including amendments in effect and published at the time of advertising the Contract or issuing the permit, unless specifically referred to by edition, volume, or date.

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Roadway - The portion of a street reserved for vehicular use.

Service Connection - All or any portion of the conduit cable or duct including meter, between a utility distribution line and an individual consumer.

Service Lateral Connection - The interface of the House Connection Sewer with the host pipe.

Sewer - Any conduit intended for the reception and transfer of sewage and fluid industrial waste.

Shop Drawings - Drawings showing details of manufactured or assembled products proposed to be incorporated into the Work.

Special Provisions - Additions and revisions to the Standard Specifications setting forth conditions and requirements peculiar to the Work.

Specifications - Standard Specifications, Reference Specifications, Special Provisions, and specifications in Change Orders or Supplemental Agreements between the Contractor and the Board.

Standard - The shaft or pole used to support street lighting luminaires, traffic signal heads, mast arms, etc.

Standard Plans - Details of standard structures, devices, or instructions referred to on the Plans or in the Specifications by title or number.

Standard Specifications - The Standard Specifications for Public Works Construction (SSPWC), the "Greenbook".

State - State of California.

Stipulated Unit Price - Unit prices established by the Agency in the Contract Documents.

Storm Drain - Any conduit and appurtenances intended for the reception and transfer of storm water.

Street - Any road, highway, parkway, freeway, alley, walk, or way.

Subbase - A layer of specified material of planned thickness between the base and the subgrade.

Subcontractor - An individual, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work.

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Subgrade - For roadways, that portion on which pavement, surfacing, base, subbase, or a layer of other material is placed. For structures, the soil prepared to support a structure.

Supervision - Supervision, where used to indicate supervision by the Engineer, shall mean the performance of obligations, and the exercise of rights, specifically imposed upon and granted to the Agency in becoming a party to the Contract. Except as specifically stated herein, supervision by the Agency shall not mean active and direct superintendence of details of the Work.

Supplemental Agreement - A written amendment of the Contract Documents signed by the Agency and the Contractor.

Surety - Any individual, firm, or corporation, bound with and for the Contractor for the acceptable performance, execution, and completion of the Work, and for the satisfaction of all obligations incurred.

Utility - Tracks, overhead or underground wires, pipeline, conduits, ducts, structures, sewers, or storm drains owned, operated, or maintained in or across a public right of way or private easement.

Work - That which is proposed to be constructed or done under the Contract or permit, including the furnishing of all labor, materials, equipment, and services.

Working Day - Any day within the period between the date of the start of the Contract time as specified in 6-1 and the date of field acceptance of the Work by the Engineer, other than:

- a) Saturday,
- b) Sunday,
- c) any day designated as a holiday by the Agency,
- d) any other day designated as a holiday in a Master Labor Agreement entered into by the Contractor or on behalf of the Contractor as an eligible member of a contractor association,
- e) any day the Contractor is prevented from working at the beginning of the workday for cause as specified herein, or
- f) any day the Contractor is prevented from working during the first 5 hours with at least 60 percent of the normal work force for cause as specified herein.

Working Drawings - Drawings showing details not shown on the Plans which are required to be designed by the Contractor.

1-3 ABBREVIATIONS

1-3.1 General. The abbreviations are applicable to these Standard Specifications and the Special Provisions. Additional abbreviations shall be as specified on the Plans or in the Special Provisions.

1-3.2 Common Usage

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<u>Abbreviation</u>	<u>Word or Words</u>
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ABS	Acrylonitrile Butadiene Styrene
ADA	Americans with Disabilities Act of 1990 (Public Law 101-336, 104 Stat. 1990, 42 USC 12101-12213 (as amended))
APC	Air Placed Concrete
ARHM	Asphalt Rubber Hot Mix
ARAM	Asphalt Rubber and Aggregate Membrane
BMPs	Best Management Practices
CAB	Crushed Aggregate Base
CAP A	Corrugated Aluminum Pipe Arch
CAP	Corrugated Aluminum Pipe
CBR	California Bearing Ratio
CCFRPM	Centrifugally Cast Fiberglass Reinforced Plastic Mortar
CCR	California Code of Regulations
CCTV	Closed Circuit TV
CHDPE	Corrugated High Density Polyethylene
CIP	Cast Iron Pipe
CIPCP	Cast-In-Place Concrete Pipe
CIPP	Cured-In-Place Pipe
CLSM	Controlled Low Strength Material
CMB	Crushed Miscellaneous Base
CRM	Crumb Rubber Modifier
CRUMAC	Crumb Rubber Modified Asphalt Concrete
CRUMAC-GG	Crumb Rubber Modified Asphalt Concrete Gap Graded
CQS	Cationic Quick-Setting
CRS	Cationic Rapid-Setting
CSP	Corrugated Steel Pipe
CSEP	Confined Space Entry Plan
CSP A	Corrugated Steel Pipe Arch
CSP	Corrugated Steel Pipe
CSS	Cationic Slow-Setting
CT	California Test
DIP	Ductile Iron Pipe
EA	Each
GG	Gap-Graded
I HC	House Connection
HDPE	High Density Polyethylene
HRWRA	High Range Water Reducing Admixture
LS	Lump Sum
MC	Medium Curing
Min	Minimum
MO	Month

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I MSDS	Material Safety Data Sheet
MUTCD	Manual on Uniform Traffic Control Devices
NI A.....	Not Applicable
OD	Outside Diameter
P A V	Pressure Aging Vessel
I PCC	Portland Cement Concrete
PE.....	Polyethylene
PG.....	Performance Graded
PLI.....	Pounds Per Linear Inch
PMB.....	Processed Miscellaneous Base
I PRCB	Precast Reinforced Concrete Box
PVC.....	Polyvinyl Chloride
RC	Rapid Curing
R	Resistance Value
RA	Reclaimed Aggregates
RAC.....	Recycled Asphalt Concrete
RAP	Reclaimed Asphalt Pavement
RCP	Reinforced Concrete Pipe
RPPCC.....	Reclaimed Plastic Portland Cement Concrete
RTFO	Rolling Thin Film Oven
RW.....	Reclaimed Water
S.....	Hveem Stability
SAPPA.....	Structural Aluminum Plate Pipe Arch
SAPP	Structural Aluminum Plate Pipe
SC.....	Slow Curing
SCMs.....	Supplementary Cementitious Materials
SDR.	Standard thermoplastic pipe dimension ratio (ratio of pipe O.D. to minimum wall thickness)
SE.....	Sand Equivalent
SG	Specific Gravity
SI.....	International System of Units (Metric)
SLC.....	Service Lateral Connection
SS.....	Slow-Setting
SSPPA	Structural Steel Plate Pipe Arch
SSPP.....	Structural Steel Plate Pipe
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traffic Control Plan
TRMAC.....	Tire Rubber Modified Asphalt Concrete
TTC	Temporary Traffic Control
U.S.C.	United States Code
U.S.	United States
VCP	Vitrified clay pipe
VTCSH.....	Vehicle Traffic Controls Signal Heads
I WATCH	Work Area Traffic Control Handbook

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WTAT..... Wet Track Abrasion Test

X By

1-3.3 Institutions

<u>Abbreviation</u>	<u>Word or Words</u>
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AASHTO	American Association of State Highway and Transportation Officials
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AISC	American Institute of Steel Construction
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ANSI.....	American National Standards Institute
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AREA.....	American Railway Engineering Association
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ASTM	American Society for Testing and Materials
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AWPA	American Wood Preservers Association
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AWS.....	American Welding Society
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AWWA.....	American Water Works Association
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EIA	Electronic Industries Alliance
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EPA	Environmental Protection Agency
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ETL.....	Electrical Testing Laboratories
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FCC	Federal Communications Commission
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GRI.....	Geosynthetic Research Institute
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IEEE.....	Institute of Electrical and Electronics Engineers
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IMSA.....	International Municipal Signal Association
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ITE.....	Institute of Transportation Engineers
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NEMA	National Electrical Manufacturers Assn.
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RUS.....	Rural Utilities Service
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UL	Underwriters' Laboratories Inc.
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1-4 UNITS OF MEASURE

1-4.1 General. The U.S. Standard Measures, also referred to as the U.S. Customary System, is the principal measurement system in these Specifications and shall be used for construction, unless otherwise specified in the Special Provisions. The International System of Units, also referred to as SI or the metric system, is included in parenthesis. U.S. Standard Measures units mayor may not be exactly equivalent to the SI units in parenthesis. If SI is specified for use in the Contract Documents, then all values used for construction shall be the SI units shown in parenthesis. Certain material specifications and test requirements contained herein use SI units specifically and U.S. Standard Measures have not been included in those circumstances.

Reference is also made to ASTM E380 for definitions of various units of the SI system and a more extensive set of conversion factors.

1-4.2 Units of Measure and Their Abbreviations

U.S. Customary	Unit Equal	To SI Unit
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(Abbreviations)

(Abbreviations)

1 mil (= 0.001 inch).....	25.4 micrometer (μm)
1 inch.....	25.4 millimeter (mm)
1 inch.....	2.54 centimeter (cm)
1 foot (ft).....	0.3048 meter (m)
1 yard (yd)	0.9144 meter (m)
1 mile (mi)	1.6093 kilometer (km)
1 square foot (ft^2).....	0.0929 square meter (m^2)
1 square yard (yd^2).....	0.8361 square meter (m^2)
1 cubic foot (ft^3)	0.0283 cubic meter (m^3)
1 cubic yard (yd^3)	0.7646 cubic meter (m^3)
1 acre.....	0.4047 hectare (ha)
1 U.S. gallon (gal)	3.7854 Liter (L)
1 fluid ounce (fl. oz)	29.5735 milliliter (mL)
1 pound mass (lb) (avoirdupois)	0.4536 kilogram (kg)
1 ounce mass (oz)	0.02835 kilogram (kg)
1 Ton (= 2000 lb avoirdupois)	0.9072 Tonne (= 907 kg)
1 Poise.....	0.1 pascal . second (Pa . s)
1 centistoke (cs)	1 square millimeters per second (mm^2/s)
1 pound force (lbf)	4.4482 Newton (N)
1 pounds per square inch (psi).....	6.8948 Kilopascal (kPa)
1 pound force per foot (lbf/ft)	1.4594 Newton per meter (N/m)
1 foot-pound force (ft-lbf)	1.3558 Joules (J)
1 foot-pound force per second (ft-lbf)	1.3558 Watt (W)
1 part per million (ppm).....	1 milligram/liter (mg/L)

Temperature Units and Abbreviations

Degree Fahrenheit ($^{\circ}\text{F}$):	Degree Celsius ($^{\circ}\text{C}$):
$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$	$^{\circ}\text{C} = (^{\circ}\text{F} - 32)/1.8$

SI Units (abbreviation) Commonly Used in Both Systems

- 1 Ampere (A)
- 1 Volt (V)
- 1 Candela (cd)
- 1 Lumen (lm)
- 1 second (s)

Common Metric Prefixes

kilo (k).....	10^3
centi (c)	10^{-2}

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milli (m)	10^{-3}
micro (μ).....	10^{-6}
nano (n)	10^{-9}
pico (p)	10^{-12}

1-5 SYMBOLS

%.....	Percent
'	Feet or minutes
"	Inches or seconds
1	Number
/	per or (between words)
o	Degree
x	Times

SECTION 2 - SCOPE AND CONTROL OF WORK

2-1 AWARD AND EXECUTION OF THE CONTRACT. Award and execution of the Contract shall be as provided for in the Special Provisions, Instructions to Bidders, and Notice Inviting Bids.

The Agreement shall be signed in triplicate by the Agency and the Contractor.

Execution of the Agreement by the Contractor is a representation that the Contractor has visited the Project Site(s), become familiar with the local conditions under which the Work is to be performed, and has correlated personal observations with the requirements of the Contract Documents.

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Bid and Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Bid and Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words used in the Bid and Contract Documents, which have a well-known technical or trade meaning are used in accordance with such meanings. Abbreviations and symbols listed in Sections 1-3 and 1-5 of the Standard Specifications, together with others in general use, are applicable to the Bid and Contract Documents.

The organization of the Specifications into sections and the arrangement of Plans shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

The intent of the Bid and Contract Documents is to prescribe the details for construction and completion of the Work in accordance with the terms of the Contract. Where Bid and Contract Documents describe portions of the Work in general terms, but not in complete detail, it is

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understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used.

Any discrepancies between Bid and Contract Documents and conditions of the Site, or in the layout given by stakes, points or instructions, discovered by the Contractor shall be promptly brought to the attention of the Agency by written notice. Work done after such discovery, until authorized by the Agency, will be done at the Contractor's risk.

In general, Specifications indicate qualities of materials and workmanship and Plans indicate dimensions, locations, quantities and details of construction. Figured dimensions take precedence over scaled measurements. Detailed Drawings and Specifications take precedence over general Drawings and Specifications. Supplementary details and instructions, approved revisions of later date and addenda take precedence over original documents, information and earlier addenda. In the event of ambiguity or conflict in indicated quantity or in quality, the greater quantity and the better quality shall govern.

The Contractor and each subcontractor shall have or obtain a valid City business license.

2-1.01. GENERAL. Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

2-1.02. FEDERAL LOBBYING RESTRICTIONS. Section 1352, Title 31, United States Code prohibits Federal funds from being expended by the recipient or any lower tier sub recipient of a Federal-aid contract to pay for any person for influencing or attempting to influence a Federal agency or Congress in connection with the awarding of any Federal-aid contract, the making of any Federal grant or loan, or the entering into of any cooperative agreement.

If any funds other than Federal funds have been paid for the same purposes in connection with this Federal-aid contract, the recipient shall submit an executed certification and, if required, submit a completed disclosure form as part of the bid documents.

A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Bid book. Standard Form - LLL, "Disclosure of Lobbying Activities," with instructions for completion of the Standard Form is also included in the Bid book. Signing the Bid book shall constitute signature of the Certification.

The above referenced certification and disclosure of lobbying activities shall be included in each subcontract and any lower-tier contracts exceeding \$100,000. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the Engineer.

The Contractor, subcontractors and any lower-tier contractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the Contractor, subcontractors and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

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- (1) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
- (2) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or
- (3) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal Action.

2-1.1 Review of Bid and Contract Documents. The Contractor certifies that (i) the Contractor has carefully examined the Project Site, has taken steps to obtain all information concerning Site conditions and is familiar with all conditions that are observable, could be known by reasonable inference or through diligent research (including information that the Agency made available to all bidders during the bid process, costs and physical conditions) affecting the performance of the Work; (ii) the Contractor has carefully examined the Bid and Contract Documents and the Bid and Contract Documents either (a) contain no significant error, inconsistency or omission or (b) the Contractor has requested additional information and clarification from the Agency in writing with respect to any such error, inconsistency or omission and has received such information and clarification from the Agency; (iii) the Bid and Contract Documents are sufficient to have enabled the Contractor to determine the cost and duration of the Work and to enter into the Contract and the Bid and Contract Documents are sufficient to construct the Work in accordance with all applicable laws, statutes, building codes and regulations and otherwise to fulfill the Contractor's obligations under the Contract; and (iv) the Contractor has requested each Subcontractor to carefully examine the Project Site, information concerning Site conditions, and Bid and Contract Documents with respect to the portion of the Work to be performed by such Subcontractor and that each Subcontractor has certified to the Contractor that such Subcontractor requires no additional information or clarification to perform the portion of the Work to be performed by such Subcontractor except as may have been requested in writing by the Contractor and to which the Agency has responded.

The Contractor shall not be liable to the Agency for any damage relating to any errors, inconsistencies, or omissions in the Bid and Contract Documents, except where the Contractor recognized or should have recognized such errors, inconsistencies, or omissions and failed to report such errors, inconsistencies or omissions to the Agency. The Contractor shall perform no portion of the Work at any time without Bid and Contract Documents, or where required, approved shop drawings, product data or samples for such portion of the Work.

The quantities given in the Bid and Contract Documents are approximate only, being given as a basis for the comparison of bids and the Agency does not, expressly or by implication, warrant or agree that the actual quantities will correspond therewith. The Agency reserves the right to increase or decrease the amount of any class or portion of the Work, or to omit portions of the Work, as may be deemed necessary or advisable by the Agency.

Information and test results which the Agency made available for review were for the convenience of bidders only and making such information and test results available is not to be construed in any way as a waiver of this section. The Agency does not guarantee that such

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information and test results are accurate and assumes no responsibility whatsoever as to their accuracy or their interpretation.

2-1.2 Penalty for Collusion. If, at any time, it is found that the Contractor has, in presenting any bid or bids, colluded with any other party or parties, then the Contract shall be null and void, and the Contractor and the Contractor's sureties shall be liable for loss or damage which the Agency may suffer thereby, and the Agency may advertise for new bids for the Work.

2-1.3 Award of Contract. The sum of the base bid and all additive, alternate and additive/alternate bids, if any, shall be used to compare all bids to determine the lowest bid. If the contract is awarded it will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed and described herein for comparison purposes.

A Responsive bid is one that meets all the requirements of the advertisement and proposal. A Responsible bidder is one who is physically organized and equipped with the financial ability to undertake and complete the contract.

Some of the more common reasons to reject a bid as "nonresponsive" include, but are not limited to:

- Failure to sign the bid documents were required
- Modification of a bid form
- Failure to furnish the required bid bond
- Failure to include a unit bid price for each item
- Failure to include a total amount for the bid
- Failure to submit all required bid documents
- Failure to timely submit "After Bid Documents"
- Inclusion of conditions or qualifications not provided for in the specifications
- Submittal of unbalanced bids in which the prices for some items are out of proportion to the prices for other items of work

Some of the more common reasons to deem a bidder "not responsible" include but are not limited to:

- Failure to meet the qualification and licensing requirements
- Past unsatisfactory performance that may involve quality of workmanship, safety, supervision, timeliness, false claims, compliance with contract requirements, compliance with local, state or federal regulations
- Debarment by any governmental agency
- Failure to provide adequate proof of sufficient financial resources to execute and complete the project considering the Contractor's entire work load when requested
- Lack of financial strength based on, but not limited to, financial statements, available resources, bonding capacity, or available insurance

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- Failure to provide evidence of qualified personnel that will supervise the project when requested
- Bidder submits or has a financial interest in more than one bid. However, a person, firm, corporation or other entity that has submitted a proposal to a Bidder, or that has quoted prices of materials to a Bidder, is not thereby disqualified from submitting a proposal or quoting prices to other Bidders submitting a bid to the Agency. No person, firm, corporation, or other entity may submit a proposal to a Bidder, or quote prices of materials to a Bidder, when also submitting a prime bid for the Work.
- For being in arrears on existing contracts, history of claims, in litigation with the Agency, or having defaulted on a previous contract
- Evidence of collusion among Bidders

Such award, if made, will be within sixty days after the opening of the proposals. All proposals will be compared on the basis of the Engineer's Estimate of the quantities of work to be done. The contractor shall submit to the Agency, when requested and prior to the award of the contract, a financial statement that indicates the contractor's ability to perform the project.

2-1.4 Execution of Contract. The Agency will mail the contract to the successful bidder. The Contract shall be signed by the successful bidder in triplicate counterpart and returned, together with the contract bonds and insurance certificates, within ten (10) working days from mailing the Contract to the contractor. No contract shall be binding upon the Agency until it has been completely executed by the contractor and the Agency.

Failure to execute a Contract and file acceptable bonds and insurance certificates as provided herein within the time limit above is just cause for the annulment of the award and the forfeiture of the bid security.

2-1.5 Document Ownership. Once the Contractor has received any compensation for the Work performed, all electronic or hard copy documents, e.g., original plans, studies, sketches, drawings, computer printouts and files, and specifications prepared in connection with or related to the Work shall be the property of Agency. The Agency's ownership of these documents includes use of, reproduction or reuse of, and all incidental rights, whether or not the item of the Work for which they were prepared has been performed.

2-1.6 Successor's Obligations. All grants, covenants, provisions and claims, rights, powers, privileges and abilities contained in the Contract Documents shall be read and held as made by and with, and granted to and imposed upon, the Contractor and the Agency and their respective heirs, executors, administrators, successors, and assigns.

2-1.7 Waiver of Legal Rights. The failure of the Agency to insist, in any one or more instances, upon the performance of any provision of the Contract, or to exercise any right therein, shall not be construed as a waiver or relinquishment of such provisions or rights. Any waiver of any breach of this contract shall not be held to be a waiver of any other or subsequent breach.

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Any waiver issued by the Agency of any provision of the Contract shall only be effective if issued in writing by the Agency and shall be specific, shall apply only to the particular matter concerned and not to other similar or dissimilar matters.

2-1.8 Requests for Information (RFI). If the work to be done is not sufficiently detailed or explained in the Contract Documents, the Contractor shall submit in writing a request to the Engineer for further explanations. Questions related to the Work shall be addressed to the Engineer for the Engineer's decision pursuant to 2-10, "AUTHORITY OF THE BOARD AND THE ENGINEER."

2-1.9 Headings. All section headings are for convenience only and shall not affect the interpretation of this contract.

2-1.10 Cumulative Remedies. The duties and obligations imposed by this contract and the rights and remedies available hereunder to the Parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon the Contractor by this contract and all of the rights and remedies available to Agency thereunder; are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents.

2-1.11 Written Notice. Notices to the Contractor shall be in writing and shall be deemed to have been fully served if delivered in person at the Project Site or Contractor's address shown in the agreement, or sent by registered or certified mail to the Contractor's address shown in the Agreement.

Notices to the Agency shall be in writing and shall be deemed to have been fully served if delivered in person at or sent by registered or certified mail to:

Roberto Yano, Acting City Engineer
City of National City
1243 National City Boulevard
National City, California 91950

Either party may change its address for notices by delivery of written notice of the change in conformance with this section.

2-2 ASSIGNMENT. No Contract or portion thereof may be assigned without consent of the Board, except that the Contractor may assign money due or which will accrue to it under the Contract. If given written notice, such assignment will be recognized by the Board to the extent permitted by law. Any assignment of money shall be subject to all proper withholdings in favor of the Agency and to all deductions provided for in the Contract. All money withheld, whether assigned or not, shall be subject to being used by the Agency for completion of the Work, should the Contractor be in default.

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The Agency and the Contractor, respectively, bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party with respect to all covenants, agreements and obligations contained in the Bid and Contract Documents.

2-2.1 Assignment to Awarding Body. In accordance with §7103.5(b) of the California Public Contract Code (A.B. 3416), you and Subcontractors must conform to the following requirements:

1. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, you or Subcontractor offer and agree to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under §4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with §16700) of Part 2 of Division 7 of the Business and Professions Code) arising from purchases of goods, services, or materials pursuant to the public works contract or the Subcontract.
2. This assignment must be made and become effective at the time the awarding body tenders to you, without further acknowledgment by the Parties.

2-2.2 Contractor Indebtedness. Indebtedness incurred for any cause in connection with this work must be paid by the contractor and the Agency is hereby relieved at all times from any indebtedness or claim other than payments under terms of the contract and the contractor will indemnify and hold harmless the Agency and its officers and employees from any loss, demand, damages, claims or actions arising from or in connection with said indebtedness.

2-3 SUBCONTRACTS

2-3.1 General. The Contractor agrees to bind in writing all Subcontractors and materials suppliers to the terms of the Bid and Contract Documents.

Contractor shall submit a copy of all listed subcontractor bids with their bid package.

Each Bidder shall comply with Chapter 4 of the Public Contract Code including Sections 4100 through 4113.

The Bidder shall set forth in the Bid, pursuant to PCC §4104:

- "a) The name and location of the place of business of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid, or, in the case of bids or offers for the construction of streets or highways, including bridges, in excess of one-half of

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1 percent of the prime contractor's total bid or ten thousand dollars (\$10,000), whichever is greater."

"b) The portion of the work which will be done by each such subcontractor under this act. The prime contractor shall list only one subcontractor for each such portion as is defined by the prime contractor in his or her bid."

If the Contractor fails to specify a Subcontractor, or specifies more than one Subcontractor for the same portion of the Work to be performed under the Contract (in excess of one-half of 1 percent of the Contractor's total Bid), the Contractor shall be qualified to perform that portion itself, and shall perform that portion itself, except as otherwise provided in the Code.

Pursuant to Section 4107, no Contractor whose Bid is accepted shall substitute any person as a Subcontractor in place of a Subcontractor listed in the Bid, except for the causes and by the procedures established in Section 4107.5. This section provides procedures to correct a clerical error in the listing of a Subcontractor.

Section 4110 provides that a Contractor violating any of the provisions of Chapter 4 violates the Contract and the Board may exercise the option either to cancel the Contract or assess the Contractor a penalty in an amount of not more than 10 percent of the subcontract involved, after a public hearing.

Subcontractors shall be qualified, sufficiently experienced, and appropriately licensed, and specifically qualified where required by the contract documents.

No subcontract releases the Contractor from the contract or relieves the Contractor of their responsibility for a subcontractor's work.

If the Contractor violates Pub Cont Code § 4100 et seq., the Agency may exercise the remedies provided under Pub Cont Code § 4110. The Agency may refer the violation to the Contractors State License Board as provided under Pub Cont Code § 4111.

By an appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Bid and Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by the Bid and Contract Documents, assumes toward the Agency, except for the provisions of Section 7-4, Contractor's Insurance, Section 7-4.1, Policies, paragraphs (i), (ii), and (iii) of these General Provisions relating to the limits of insurance coverage. The limits of insurance coverage for liability and business auto policies required by the Contractor from each Subcontractor shall be determined by the Contractor.

Each subcontract shall include an indemnity agreement in the form of Section 7-15, Indemnification, in favor of the Agency and its respective employees and agents. The Subcontractors shall name the parties described in Section 7-3.2, Endorsements, as additionally

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insured, but only with respect to work done by, for, or on behalf of the named insures, in any liability insurance policies maintained by the Subcontractors.

The Contractor -Subcontractor agreements shall preserve and protect the rights of the Agency under the Bid and Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor -Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Agency.

Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with their sub-Subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract, copies of the Bid and Contract Documents to which the Subcontractor will be bound by this Section and identify to the Subcontractor any terms and conditions of the proposed subcontract which may be at variance with the Bid and Contract Documents. Each Subcontractor shall similarly make copies of such Bid and Contract Documents available to their sub-Subcontractors.

The Contractor shall be fully responsible for the acts and omissions of the Contractor's Subcontractors, and of persons either directly or indirectly employed by them, as the Contractor is for the acts and omissions of persons directly employed by the Contractor.

When a portion of the Work subcontracted by the Contractor is not being performed in a manner satisfactory to the Agency, the Agency shall notify the Contractor and shall inform the Contractor of the deficiencies in the Subcontractor's execution of the Work. If the Subcontractor fails to correct such deficiencies within five (5) days after Contractor's receipt of notification from the Agency, the Contractor shall cause the Subcontractor to be removed immediately from the Work.

Each Subcontractor and materials supplier shall agree in writing to be bound by and submit any disputes under its contract for resolution in accordance with the dispute resolution provisions set forth in the sections addressing claims for damages.

The Contractor shall require each Subcontractor and materials supplier to agree in writing to utilize any reserve gate set aside, at the Agency's election, for use by the Subcontractor, its suppliers and employees, or the materials supplier. Contractor shall require each Subcontractor and materials supplier to agree in writing to perform its obligations under this Contract notwithstanding the presence of pickets at the reserve gate.

Each subcontractor must have an active and valid State contractor's license with a classification appropriate for the work to be performed (Bus & Prof Code, § 7000 et seq.).

Contractor shall not use a debarred subcontractor; a current list of debarred contractors is available at the Department of Industrial Relations' Web site.

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2-3.2 Suppliers List. The Contractor warrants that it has listed all Suppliers known to the Contractor at the time of Award on the Agency provided forms attached to this contract. If the Suppliers are required, that were not listed by the Contractor prior to Award, the Contractor shall let the supply subcontract in accordance with a competitive bidding process performed at the Contractor's expense.

2-3.3 Subcontractor List. The listing of Subcontractors provided by the Contractor, in compliance with the "Subletting and Subcontracting Fair Practices Act" (Public Contract Code §§4100-4114, inclusive), shall not be modified without the prior written approval of the Agency.

If at any time after Award of the Contract the Contractor identifies a need for additional Subcontractor services, the Contractor shall immediately request in writing the Agency's consent. The request shall include a justification, a description of the work, and an estimate of the costs for the services. The Agency shall make the sole and final determination as to the acceptance of the addition or substitution on any subcontractor.

2-3.4 Self-Performance. The Contractor shall perform, with its own organization, Contract work amounting to at least 50 percent of the Contract Price except that any designated "Specialty Items" may be performed by subcontract and the amount of any such "Specialty Items" so performed will be deducted from the Contract Price before computing the amount required to be performed by the Contractor with its own organization. "Specialty Items" will be identified by the Agency in the Bid or in the Special Provisions. Where an entire item is subcontracted, the value of work subcontracted will be based on the Contract Unit Price. When a portion of an item is subcontracted, the value of work subcontracted will be based on the estimated percentage of the Contract Unit Price. This will be determined from information submitted by the Contractor, and subject to approval by the Engineer.

The requirement for the Contractor minimum performance is waived only for contracts where only a "B" License is required for the prime contractor.

2-3.5 Status of Subcontractors. The Contractor shall give personal attention to the fulfillment of the Contract. The Contractor shall keep the Work under its control.

Subcontractors shall be considered employees of the Contractor, and the Contractor shall be responsible for their work.

2-3.6 Subcontract Requirements. The Contractor shall incorporate these specifications in its Subcontracts to the extent of the Work to be performed by such Subcontractor.

The Contractor shall obtain or require that each Subcontractor obtain insurance policies in accordance with section 7-3, "LIABILITY INSURANCE" which shall be kept in full force and effect during Work on this project and for the duration of this contract.

In any dispute between the Contractor and the Subcontractor the Agency shall not be made a party to any judicial or administrative proceeding to resolve the dispute.

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The Subcontractors must be qualified and sufficiently experienced. You must ensure that your Subcontractors are appropriately licensed for the duration of the Work that is performed under the Subcontracts. In the event the Subcontractor is not properly licensed, you must cease payment to the Subcontractor for all work performed when the Subcontractor was not properly licensed. You must return to the Agency any payment you made to a Subcontractor for work performed when the Subcontractor was not licensed.

Where the Contract Documents require that a particular product be installed or applied by an applicator approved by the manufacturer, ensure and provide evidence that the Subcontractor or Supplier employed for such work is approved by the manufacturer.

2-4 CONTRACT BONDS. Before execution of the Contract, the Bidder shall file surety bonds with the Agency to be approved by the Board in the amounts and for the purposes noted below. Bonds issued by a surety who is listed in the latest version of US. Department of Treasury Circular 570, who is authorized to issue bonds in California, and whose bonding limitation shown in said circular is sufficient to provide bonds in the amount required by the Contract shall be deemed to be approved unless specifically rejected by the Agency. Bonds from all other sureties shall be accompanied by all of the documents enumerated in the Code of Civil Procedure, Section 995.660 a). The Bidder shall pay all bond premiums, costs, and incidentals.

Each bond shall incorporate, by reference, the Contract and be signed by both the Bidder and the Surety. The signature of the authorized agent of the Surety shall be notarized.

The Bidder shall provide two (2) good and sufficient surety bonds. The "Payment Bond" (Material and Labor Bond) shall be for not less than 100 percent of the Contract Price, to satisfy claims of material suppliers and mechanics and laborers employed by it on the Work. The bond shall be maintained by the Contractor in full force and effect until the performance of the Contract is accepted by the Agency and until all claims for materials and labor are paid, and shall otherwise comply with the Civil Code.

The "Performance Bond" shall be for 100 percent of the Contract Price to guaranty faithful performance of all work, within the time prescribed, in a manner satisfactory to the Agency, and that all materials and workmanship will be free from original or developed defects. The bond must remain in effect until the end of all warranty periods set forth in the Contract Documents.

Should any bond become insufficient, the Contractor shall renew the bond within 10 days after receiving notice from the Agency.

Should any surety at any time be unsatisfactory to the Agency, notice to that effect will be given to the Contractor. No further payments shall be deemed due or will be made under the Contract until a new surety qualifies and is accepted by the Agency.

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Changes in the Work or extensions of time, made pursuant to the Contract, shall in no way release the Contractor or the Surety from its obligations. As a condition of providing a bond for this project the Surety waives any notice requirements of such changes in work or extensions of time.

Before execution of the Contract by the Agency, the Bidder shall file with the Agency surety bonds satisfactory to the Agency in the amounts and for the purposes noted below. Bonds shall be duly executed by a responsible corporate Surety, authorized to issue such bonds in the State of California and have assets that exceed its liabilities in an amount equal to, or in excess of, the amount of the bond. The Bidder shall pay all bond premiums, costs, and incidentals.

Each bond shall be on the forms provided and be signed by both the Bidder and Surety and the signature of the authorized agent of the Surety shall be notarized.

The Bidder shall provide two good and sufficient surety bonds:

The Performance Bond shall be for one hundred percent (100%) of the Contract Price to guarantee faithful performance of all Work, within the time prescribed, in a manner satisfactory to the Agency, and that all materials and workmanship will be free from original or developed defects.

The Payment Bond shall be for not less than one hundred percent (100%) of the Contract Price, to satisfy claims of material suppliers and of mechanics and laborers employed by it on the Work. The bond shall be maintained by the Contractor in full force and effect until the Work is accepted by The Agency, and until all claims for materials and labor are paid, and shall otherwise comply with the Civil Code.

Should any bond become insufficient, the Contractor shall renew the bond within ten (10) days after receiving notice from the Agency.

Should any Surety at any time be unsatisfactory to the Board, notice will be given the Contractor to that effect. No further payments shall be deemed due or will be made under the Contract until a new Surety shall qualify and be accepted by the Board.

Changes in the Work, or extension of time, made pursuant to the Contract, shall in no way release the Contractor or Surety from its obligations. Notice of such changes or extensions shall be waived by the Surety.

2-5 PLANS AND SPECIFICATIONS

2-5.1 General. The Contractor shall keep at the Work site a copy of the Plans and Specifications and will provide the Engineer with access at all times.

The Plans, Specifications, Contract Documents, reference materials, codes and regulations shall govern the Work. The Contract Documents are intended to be complementary and cooperative.

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Anything specified in the Specifications and not shown on the Plans, or shown on the Plans and not specified in the Specifications, shall be as though shown on or specified in both.

The Plans shall be supplemented by such working drawings and shop drawings as are necessary to adequately control the Work.

The Contractor shall, upon discovering any error or omission in the Plans or Specifications, immediately call it to the attention of the Engineer. If the Contractor fails to inform the Engineer in writing of any error or omission any costs incurred by the contractor or additional future costs resulting from the Contractor's action or inaction shall be borne solely by the Contractor and there shall be no costs to the Agency.

2-5.2 Precedence of Contract Documents. If there is a conflict between any of the Contract Documents, the documents highest in precedence shall control. A conflict is where one item is shown differently in two locations and both indications of the item cannot be constructed or produced. An omission of an item in one area of the plans or specifications but shown in another is not a conflict but shall be considered included in all. The precedence shall be as follows:

- 1) Permits of other agencies as may be required by law.
- 2) California Building, Mechanical, Electrical and Plumbing codes
- 3) Change Orders and Supplemental Agreements; whichever occurs last.
- 4) Contract/Agreement
- 5) Addenda
- 6) Bid Schedule
- 7) Project Special Provisions
- 8) Project Plans
- 9) Agency Standard Drawings
- 10) Utility Standard Drawings
- 11) Regional Standard Drawings
- 12) Regional Supplement
- 13) "Greenbook" Standard Specifications for Public Works Construction
- 14) Reference Specifications/Standards. (If a referenced specification or standard other than other than those listed above is directly called out to control a particular item of work, it shall assume the same position in the order or precedence as the project plans and specifications.)

Detail drawings shall take precedence over general drawings.

Other controlling drawings and codes:

STANDARD SPECIFICATIONS/CODES are the most current edition (unless stated otherwise) at the time of bidding.

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1. Standard Specifications for Public Works Construction (Greenbook) and all Regional Supplements (2015 edition).
2. Manual for Uniform Traffic Control Devices for the State of California.
3. State of California Mechanical, Electrical and Plumbing Codes.
4. All local utilities' standards, regulations and codes.

STANDARD DRAWINGS are the most current at the time of bidding.

1. Agency's Standard Drawings and supplements.
2. State of California Building, Mechanical, Electrical and Plumbing Codes related drawings.
3. All local utilities' standard drawings.
4. State and Federal Standard Drawings.

2-5.3 Submittals

2-5.3.1 General. Anything required to be provided by the Contractor to the Agency for review, acceptance or approval is a submittal. Submittals shall be provided, at the Contractor's expense as required by the Contract Documents, or when requested by the Engineer when needed to ensure consistency, quality, function, conformance, durability, compatibility or any other reason deemed necessary by the Engineer. The Agency shall provide an initial submittal review and one re-review for each resubmittal. The cost of all additional re-reviews for each submittal shall be paid for by the Contractor. The Agency may deduct the costs of the additional re-reviews from any monies owed to the Contractor.

Materials shall not be furnished or fabricated, or shall any work for which submittals are required be performed, before the required submittals have been reviewed and accepted with exception by the Engineer. Review or acceptance of the submittals by the Engineer shall not relieve the Contractor from responsibility for errors, omissions, or deviations from the Contract Documents, unless such deviations were specifically called to the attention of the Engineer in the letter of transmittal and on the submittal. The Contractor shall be responsible for the correctness of the submittals. Work or materials that are incorporated into the work that differ from those required in the Contract Documents that were not approved with such proper written notice from Contractor shall be removed and replaced with the specified item at the Contractor's expense.

The Contractor shall allow a minimum of 20 working days for review of submittals unless otherwise specified in the Special Provisions. A letter of transmittal shall accompany each submittal. The Agency is not obligated to return the submittal in 20 working days if the Contractor has delayed its submittals, delivered too many submittals at once, has, in the Agency's opinion, too many errors or deficiencies, or when changed conditions arise as to any particular submittal. The Contractor shall notify the Agency in writing of any submittals that are urgent or become critical to the schedule with the desired return date.

Prior to the start of work the Contractor shall prepare in Microsoft Excel and deliver to the Engineer a log of submittals that indicates all required submittals, and for each:

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- a) Estimated deliver date of the submittal.
- b) Last day submittal can be delivered to keep the project schedule (factor in response time and resubmittal/response time).

Unless otherwise stated in the Contract Documents, the Contractor shall deliver via email all submittals in pdf format to the Project Manager. Such submittals shall be returned via email in pdf format.

Each submittal shall be consecutively numbered (eg. 1.0, 2.0, 3.0, etc.). Resubmittals shall be labeled with the original submittal number followed by an ascending decimal designation (e.g. The label '4.1' would indicate the first resubmittal for submittal number 4). Each sheet of each submittal shall be consecutively numbered. Each set of shop drawings and submittals shall be accompanied by a letter of transmittal on the Contractor's letterhead. The Letter of transmittal shall contain the following:

1. Project title and Agency CIP number.
2. Number of complete sets.
3. Contractor's certification statement.
4. Specification section number(s) pertaining to material submitted for review.
5. Submittal number (Submittal numbers shall be consecutive including subsequent submittals for the same materials).
6. Table of Contents describing the contents of the submittal.
7. Identification of deviations from the contract documents.

The Contractor shall subscribe to and shall place the following certification on all submittals:

"I hereby certify that the (equipment, material) shown and marked in this submittal is that proposed to be incorporated into this Project, is in compliance with the Contract Documents, can be installed in the allocated spaces, and is submitted for approval."

By: _____ Title: _____

Date: _____

Company Name: _____

2-5.3.2 Working Drawings. Working Drawings shall be of a size and scale to clearly show all necessary details. The Contractor shall confirm the scale of the drawings with the Engineer prior to preparation and submittal.

Six copies and one reproducible shall be submitted. If no revisions are required, 3 of the copies will be returned to the Contractor. If revisions are required, the Engineer will return one copy

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along with the reproducible for resubmission. Upon acceptance, the Engineer will return 2 of the copies to the Contractor and retain the remaining copies and the reproducible.

Working Drawings are required in the subsections shown in Table 2-5.3.2 (A):

TABLE 2-5.3.2 (A)			
Item	Subsection No.	Title	Subject
1	7-8.5.2	Sanitary Sewers	Sewage Bypass and Plumbing
2	7-8.6.3	Water Pollution Control	Storm Water Pollution Prevention Plan
3	7-8.6.4	Work Pollution Control	Dewatering Plan
4	7-10.2.2	Work Area Traffic Control	Traffic Control Plan
5	7-10.4.2.2	Safety	Shoring Plan
6	300-3.2	Cofferdams	Structure Excavation & Backfill
7	303-1.6.1	General	Falsework
8	303-1.7.1	General	Placing Reinforcement
9	303-3.1	General	Prestressed Concrete Construction
10	304-1.1.2	Falsework Plans	Structural Steel
11	306-2.1	General	Jacking Operations
12	306-3.1	General	Tunneling Operations
13	306-3.4	Tunnel Supports	Tunneling Operations
14	306-6	Remodeling Existing Sewer Facilities	Polyethylene Liner Installation
15	306-8	Microtunneling	Microtunneling Operations

Working Drawings listed above as Items 4, 5, 6, 7, 9, 10, 12, 13 and 14 shall be prepared by a Civil or Structural Engineer registered by the State of California.

2-5.3.3 Shop Drawings. Contractor agrees that Shop Drawing Submittals processed by the Engineer are not Change Orders. The purpose of Shop Drawing Submittals by the Contractor is to demonstrate to the Engineer that the Contractor understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install, and by detailing the fabrication and installation methods he intends to use.

Shop Drawings are required in the subsections shown in Table 2-5.3.3 (A):

TABLE 2-5.3.3 (A)			
Item	Subsection No.	Title	Subject
1	207-2.5	Joints	Reinforced Concrete Pipe
2	207-8.4	Joints	Vitrified Clay Pipe
3	207-10.2.1	Joints	Vitrified Clay Pipe
4	304-1.1.1	Shop Drawings	Structural Steel

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5	304-1.1.2	Falsework Plans	Structural Steel
6	304-2.1	General	Metal Hand Railings
7	307-1	General	Shop Drawings

Shop drawings shall include complete fabrication, assembly, foundation, and installation drawings for the complete assembly of the system with all components, equipment, and parts, each with an assigned number corresponding to the system manufacturer's parts list. Shop drawings shall also show construction details for each component and piece of equipment.

When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification that the Contractor has reviewed, checked, and approved the Shop Drawings and that they are in conformance with the requirements of the Contract Documents.

2-5.3.4 Supporting Information. Supporting information is information and documentation required by these Contract Documents for the purposes of administration of the Contract, analysis for verification of conformance with the Specifications, the operation and maintenance of a manufactured product or system to be constructed as part of the Work, and other information as may be required by the Engineer. Review and comments on all submittals is for the benefit of the Agency only and does not relieve the Contractor of their primary responsibility to provide materials and construct the project in conformance with the Contract Documents, applicable permits and laws. Electronic pdf. copies of the supporting information shall be submitted to the Engineer prior to the start of the Work unless otherwise specified in the Contract Document or directed by the Engineer. Submittals shall be electronically stamped and returned via email to the Contractor. Supporting information shall consist of the following and is required at the pre-construction meeting unless otherwise specified in the Special Provisions or allowed by the Engineer.

The following submittals are required prior to the start of work:

1. 24-hour emergency contact information
2. Name and contact information of the company contact and superintendent who is authorized to legally bind the Contractor
3. List of all potential subcontractors and DIR number regardless of percentage of work to be performed
4. Construction schedule
5. Public notifications
6. Digital photo documentation of the project site and adjacent areas
7. Corner Recorders of all survey monuments tie-out in or near the work area (if surveying is to be provided by the Contractor)
8. Specifications and certifications for each material or item to be used on the project
9. List of all equipment to be employed on the project
10. Traffic control plans
11. Certified payroll documents (set up documents)
12. Illness and Injury Prevention Program Plan
13. Certificates of Compliance for materials and equipment to be used

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14. Schedule of Values for all lump sum bid items
15. All permits and contractor licenses
16. Business licenses
17. Confined Space Entry Program and Shoring Plan, (if required)
18. Sewer Spill Prevention Plan, (if required)
19. Cut sheet/shop drawings, manufacturer's brochures, technical bulletins and reports, specifications, diagrams for all products to be used on the project
20. Plans, schematics, drawings and engineering calculations as required per the contract documents and/or permitting
21. SWPPP (if required)
22. Controller cabinet wiring diagrams (if any)
23. Data, including, but not limited to, catalog sheets, manufacturer's brochures, technical bulletins, specifications, diagrams, product samples, and other information necessary to describe a system, product or item. This information is required for irrigation systems, street lighting systems, and traffic signals, and may also be required for any product, manufactured item, or system
24. Other submittals as described herein, referenced or described in referenced materials, or as requested by the Engineer.
25. Sample company invoice for conformance with Agency requirements.

If the Contractor cannot bring any of the items listed above to the pre-construction meeting he/she must request and receive prior written approval by the Engineer for the preconstruction meeting to be held. Failure by the Contractor to bring all of the required items listed above to the preconstruction or failure to bring any listed item in the form and detail required will result in the immediate adjournment of the meeting and the Contractor will not be authorized to begin the work. The Agency will issue a special Notice to Cure Default with an itemized list of deficient or missing submittals.

The next preconstruction meeting will be reset for no later than 10 working days from the original meeting. If the Contractor does not attend the meeting or if the Contractor fails to show up with any of the required items listed above in the form and detail required, or fails to obtain prior written approval from the Engineer for any missing or delayed submittals the meeting will immediately be adjourned and the Contractor shall be held in default.

The following submittals are required during the work:

1. Superintendent's daily report, which shall include:
 - a. Name, work classification and hours of each worker
 - b. Equipment make and model and character of use (use or idle hours)
 - c. Work accomplished
2. Certificates of compliance for products delivered
3. Incident reports
4. Photo documentation
5. Schedule updates
6. Material tickets

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7. Product samples and mock-ups
8. Certified payroll documents
9. Interim as-built drawings
10. Other submittals as described herein, referenced or described in referenced materials, or as requested by the Engineer

The following submittals are required at the completion of work:

1. Notice that work is complete
2. Warranties/Guarantees
3. User Manuals
4. As-built plans
5. Close-out documents from Appendix 3
6. Other submittals as described herein, referenced or described in referenced materials, or as requested by the Engineer

2-5.4 Record Drawings (Red-line As-built drawings). Accurate and legible records shall be kept on a set of contract drawings of all changes of work, which occur during construction. The contractor shall record the exact location by dimension, and exact depth, by elevation, of all underground lines, valves, plugged tees, capped ends, and all other underground facilities. The Contractor shall record, by dimension and/or scale drawings, all wiring, conduits and pull boxes as actually installed. All information necessary to maintain and/or service any concealed work shall be noted on these record drawings. Such records shall be kept up to date with all entries checked by the Engineer before the work is buried or covered up. Upon completion of the work (but prior to acceptance of the work), Contractor shall deliver to the Agency two sets of complete "As Built" record drawings.

Depending upon the length of the Contract and the complexity of the project, the Engineer reserves the right to request interim prints of the "As-Built" record drawing when the Contractor submits periodic application for payment in order to verify the accuracy and timeliness of recording the actual construction conditions. If the Contractor's "As Built" documentation is not satisfactory to the Engineer, this deficiency may be cause to delay approval of the periodic or final payment applications until the deficiencies are satisfactorily resolved.

If the Contractor fails to keep adequate As-Built Drawings the Engineer may take any and all measures necessary to create proper and acceptable As-Built drawings through any means the Engineer deems appropriate including hiring a qualified third party. All costs incurred by the Agency to develop and produce As-Built drawings shall be deducted from amounts due to the Contractor.

See additional requirements within the Contract Documents (if any).

2-5.4.1 Payment. Payment for all costs associated with the keeping and processing of As-Built drawings shall be included in the line item for "As-Built". If there is no line item for "As-Built" then all said costs shall be included in the various line items of work.

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2-6 WORK TO BE DONE. The work to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies and manufactured articles, and for furnishing all transportation, services, including fuel, power and water and essential communications, and the performance of all labor, work or other operations required for the fulfillment of the Contract, in strict accordance with the specifications, schedules and drawings, all of which are made a part hereof, and including such detailed sketches as may be furnished by the Engineer from time to time during the construction in explanation of said drawings.

The work shall be complete, and all work material and services not expressly called for in the specifications, or not shown on the drawings which may be necessary for complete and proper construction to carry out the Contract in good faith, shall be performed, furnished and installed by the Contractor at no additional cost to the Agency.

2-7 SUBSURFACE DATA. The Agency does not represent that the referenced documents show or indicate all the conditions that will be encountered in performing the Work. The Agency represents only that the reports of explorations and tests show the conditions encountered at the particular locations and at the particular times they were obtained. The Bidders and other users of the data are cautioned that interpretations and conclusions contained in the documents were formulated for design purposes only and were based on work performed in such a way as to expressly provide information required for design.

All soil and test hole data, ground water elevations, and soil analyses shown on the Plans or included in the Special Provisions apply only at the location of the test holes and to the depths indicated. Soil test reports, if any, are available for inspection at the office of the Engineer. Additional subsurface exploration may be performed by the Contractor at their expense and upon approval by the Agency.

The indicated groundwater elevation is that which existed on the date specified in the data. It is the Contractor's responsibility to determine and allow for the groundwater elevation on the date the Work is performed. The Contractor shall assume that there will be a difference in groundwater elevations between what is shown in soil boring logs and what is actually encountered during construction will not be considered as a basis for Extra Work per 3-3.

2-8 RIGHT-OF-WAY. Rights-of-way, easements, or rights-of-entry for the Work will be provided by the Agency. Unless otherwise specified in the Special Provisions, the Contractor shall make arrangements, pay for, and assume all responsibility for acquiring, using, and disposing of additional work areas and facilities temporarily required. The Contractor shall indemnify and hold the Agency harmless from all claims for damages caused by such actions.

The Contractor shall confine operations to the areas shown unless special arrangements are otherwise made with individual property owners. The Contractor shall obtain a written release from the property owner and provide a copy of said release to the Agency for any special arrangements made with property owners prior to any action relating to the special arrangement

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is taken by the Contractor. Furthermore, the Contractor shall conduct operations in accordance with any other provisions and shall observe any restrictions contained in these Special Provisions or as directed by the Engineer concerning work on private property.

2-9 SURVEYING. The Contractor shall provide all surveying required for the project through a California licensed Land Surveyor or registered Civil Engineer authorized to practice land surveying, i.e. C 33965 or lower.

2-9.1 Permanent Survey Markers. The Contractor must notify the Engineer at least 7 days before starting the Work to coordinate for the preservation of survey monuments, and benchmarks. The City shall provide monument tie-out, corner records and reset for all monuments identified by the Engineer as possible to be disturbed by construction activities. The Engineer's surveyor shall identify all such monuments in the field by mark-out. It is the responsibility of the Contractor to ensure that all monuments encountered during construction are properly tie-out and marked prior to disturbing any monument.

1. The Contractor shall not disturb or permanently cover survey monuments or benchmarks without the consent of the Engineer or the. The Contractor shall bear the expense of uncovering and replacing any that may be disturbed or covered without permission.
2. When a change is made in the finished elevation of the pavement of any roadway in which a street survey monument is located, adjust the monument cover to the new grade within 7 days of finished paving unless otherwise specified in the Special Provisions. If a referenced monument is unable to be reset in its original location due to improvements, establish the reset monument in a location approved by the Engineer.
3. Replacing and establishing survey monuments and benchmarks must be done only under the direction of the Engineer by a Licensed Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the State of California.

2-9.2 Survey Service. The Contractor shall hire a California licensed Land Surveyor to take will be set and stationed by the Engineer for curbs, headers, sewers, storm drains, structures, and rough grade. A corresponding cut or fill to finished grade (or flowline) will be indicated on a grade sheet.

When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, the Contractor shall adjust the monument cover to the new grade within 7 days of finished paving unless otherwise specified in the Special Provisions.

The Contractor shall submit a proposed construction surveying plan that indicates the type, frequency and location of all types of construction staking the Contractor intends to use. This proposed construction surveying plan will be reviewed by the Engineer for approval. The Contractor must have an approved construction surveying plan prior to staking the project.

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2-9.3 Private Engineers. Surveying by private engineers on the Work shall conform to the quality and practice required by the Engineer.

2-9.4 Line and Grade. All work shall conform to the lines, elevations, and grades shown on the Plans.

Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the Engineer. In the absence of such report, the Contractor shall be responsible for any error in the grade of the Work.

Grades for underground conduits will be set at the surface of the ground. The Contractor shall transfer them to the bottom of the trench.

Finished surfaces in all cases shall conform to the lines, grades, cross-sections and dimensions shown on the approved Bid and Contract Documents. Deviations from the approved documents and working drawings shall in all cases be determined and authorized in writing by the Agency.

2-9.5 Payment. All costs associated with work required for surveying and related work as required in the Contract Documents and California law shall be included in the lump sum item "Surveying and Construction Staking". If there is no such line item all costs associated with this work shall be included in the various line items of work that require surveying and there shall be no additional costs to the Agency.

2-10 AUTHORITY OF THE BOARD AND THE ENGINEER. The Board has the final authority in all matters affecting the Work. Within the scope of the Contract, the Engineer has the authority to enforce compliance with the Contract Documents. The Contractor shall promptly comply with instructions from the Engineer.

The decision of the Engineer is final and binding on all questions relating to:

- a) quantities;
- b) acceptability of material, equipment, or work;
- c) execution, progress or sequence of work; and
- d) interpretation of the Plans, Specifications, or other Contract Documents.
- e) Any other areas specifically identified in the Contract Documents or under the law.

Compliance with instructions from the Engineer shall be a condition precedent to any payment under the Contract, unless otherwise ordered by the Board.

2-11 INSPECTION. The Work is subject to inspection and approval by the Engineer. The Contractor shall notify the Engineer before noon of the working day before inspection is required. Work shall be done only in the presence of the Engineer, unless otherwise approved. Any work done without proper inspection will be subject to rejection. The Engineer and any authorized representatives shall at all times have access to the Work during its construction at shops and yards and while in storage, as well as to the Work site. The Contractor shall provide every

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reasonable facility for ascertaining that the materials and workmanship are in accordance with these Specifications. Inspection of the Work shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill the Contract as prescribed. Defective or non-compliant work, unsuitable material(s) and equipment may be rejected notwithstanding and regardless of the fact that such defective or non-compliant work, unsuitable materials and equipment may or may not have been previously inspected by the Agency's Representative or that payment therefore has been included in an estimate for payment. Any defective or non-compliant work, unsuitable material(s) and equipment shall be replaced immediately to original contract specifications and any other improvements damaged as a results such replacement shall be repaired to as good or better condition. All such work shall be done at the contractor's expense and there shall be no costs to the Agency.

All costs of inspection and testing performed during overtime work by the Contractor, which is allowed solely for the convenience of the Contractor shall be borne by the Contractor. The Agency shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the Contractor. The value of services rendered for these purposes shall be at full cost recovery rates.

2-11.1 Inspection by Other Agencies and Utilities. Whenever any part of the Work to be performed is under the jurisdiction or control or is to be paid for, in whole or in part, by another public subdivision, entity, jurisdiction or utility company such Work shall be subject to inspection and approval by the proper officials of such entities or jurisdictions and it must pass inspection, in addition to Agency inspection, and such other inspections as may be otherwise provided for in the Bid and Contract Documents.

The Contractor shall schedule separate preconstruction meetings for each agency or utility prior to commencing work within their jurisdiction.

The Contractor is solely responsible for requesting and coordinating such inspections.

2-12 SPECIAL NOTICES. When specified in the Specifications or directed by the Engineer, any notice required to be served in accordance with this subsection shall be in writing, dated, and signed by the Contractor or the Engineer. Such notices shall be served by any of the following methods:

- a) Personal delivery with proof of delivery, which may be made by declaration under penalty of perjury by any person over the age of 18 years. The proof of delivery shall show that delivery was performed in accordance with these provisions. Service shall be effective on the date of delivery. Notices given to the Contractor by personal delivery may be made to the Contractor's authorized representative at the Work site; or
- b) Certified mail addressed to the mailing address of the recipient postage prepaid; return receipt requested. Service shall be effective on the date of the receipt of the mailing.

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Simultaneously, the Agency may send the same notice by regular mail. If a notice that is sent by certified mail is returned unsigned, then delivery shall be effective pursuant to regular mail, provided the notice that was sent by regular mail is not returned.

The delivery of any notice, instruction, claim, protest or other written communications personally to the Contractor or his Superintendent, to the Engineer or to the Agency shall constitute service thereof upon the Contractor, the Engineer or to the Agency, respectively.

The depositing in a post-paid wrapper directed to the official address of the Contractor, the Engineer or the Agency in any post office mail box regularly maintained by the post office, or any notice, instruction, claim protest or other written communication, shall be deemed sufficient service thereof upon the Contractor, the Engineer or the Agency, respectively, and the date of service shall be the day following the date of such mailing.

The official address of the Contractor shall be the address given in the accepted Proposal, or such other address as the Contractor may subsequently designate in writing to the Engineer and to. The official address of the Engineer is:

Stephen Manganiello, Director of Public Works/City Engineer
City of National City
1243 National City Blvd.
National City, CA 91950

or such other address as the Engineer may subsequently designate in writing to the Contractor.

2-13 SITE ACTIVITIES BY THE AGENCY OR SEPARATE CONTRACTORS

2-13.1 Agency's Right to Award Separate Contracts. The Agency reserves the right to perform work or operations outside the scope of Work of this contract related to the Project with separate contractors. If Work to be performed by another party was not noted in this contract, the Agency will give written notice to the Contractor 10 Working Days prior to the start of any work. If the Contractor determines that the work being performed by others may interfere with, or cause damages to Work being performed by the Contractor, the Contractor shall notify the Agency in writing within 3 Working Days of the Agency's notice.

2-13.2 Integration of the Work with Separate Contractors. If specified in the Contract Documents, the Contractor shall prepare a plan in order to integrate the work performed by Separate Contractors with the performance of the Work, and shall submit such plan to the Agency for approval. The plan shall be fair and reasonable for the Contractor and the Separate Contractors, and the Contractor shall work with the Separate Contractors to reach agreement on such plan. The Contractor shall arrange the performance of the Work so that the Work and the work of the Separate Contractors are, to the extent applicable, properly integrated, jointed in an

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acceptable manner, and performed in the proper sequence so that any disruption or damage to the Work or to any work of Separate Contractors is avoided.

The cost of coordinating traffic control and attending project coordination meeting shall be included in the various line items of work and there shall be no further costs to the Agency.

If part of your work depends on proper execution or results upon construction or operations a separate contractor, prior to proceeding with that portion of the Work, promptly report to the separate contractor and the Engineer apparent discrepancies or defects in such other construction that would render it unsuitable for proper execution and results by you. Use good faith efforts to resolve any such discrepancies or defects or any related disagreements. Your failure to report constitutes your acceptance of the work of separate contractors as fit, proper, and coordinated with the Work.

SECTION 3 - CHANGES IN WORK

3-1 CHANGES REQUESTED BY THE CONTRACTOR

3-1.1 General. Changes in the Plans and Specifications, requested in writing by the Contractor, which do not materially affect the Work and which are not detrimental to the Work or to the interests of the Agency, may be granted by the Engineer. Nothing herein shall be construed as granting a right to the Contractor to demand acceptance of such changes.

3-1.2 Payment for Changes Requested by the Contractor. If such changes are granted, they shall be made at a reduction in cost or no additional cost to the Agency.

3-2 CHANGES INITIATED BY THE AGENCY

3-2.1 General. The Agency may change the Plans, Specifications, character of the work, or quantity of work provided the total arithmetic dollar value of all such changes, both additive and deductive, does not exceed 25 percent of the Contract Price. Should it become necessary to exceed this limitation, the change shall be by written Supplemental Agreement between the Contractor and Agency, unless both parties agree to proceed with the change by Change Order.

Change Orders shall be in writing and state the dollar value of the change or establish the method of payment, any adjustment in the Contract time of completion, and when negotiated prices are involved, shall provide for the Contractor's signature indicating acceptance.

3-2.2 Contract Unit Prices

3-2.2.1 General. If a change is ordered in an item of work covered by a Contract Unit Price, and such change does not involve a substantial change in character of the work from that shown on the Plans or specified in the Specifications, then an adjustment in payment will be made. This adjustment will be based upon the increase or decrease in quantity and the Contract Unit Price.

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If the actual quantity of an item of work covered by a Contract Unit Price and constructed in conformance with the Plans and Specifications varies from the Bid quantity by 25 percent or less, payment will be made at the Contract Unit Price. If the actual quantity of said item of work varies from the Bid quantity by more than 25 percent, payment will be made per 3-2.2.2 or 3-2.2.3 as appropriate.

If a change is ordered in an item of work covered by a Contract Unit Price, and such change does involve a substantial change in the character of the work from that shown on the Plans or specified in the Specifications, an adjustment in payment will be made per 3-2.4.

3-2.2.2 Increases of More Than 25 Percent. Should the actual quantity of an item of work covered by a Contract Unit Price and constructed in conformance with the Plans and Specifications, exceed the Bid quantity by more than 25 percent, payment for the quantity in excess of 125 percent of the Bid quantity will be made on the basis of an adjustment in the Contract Unit Price mutually agreed to by the Contractor and the Agency, or at the option of the Engineer, on the basis of Extra Work per 3 -3.

The Extra Work per 3-3, basis of payment, shall not include fixed costs. Fixed costs shall be deemed to have been recovered by the Contractor through payment for 125 percent of the Bid quantity at the Contract Unit Price.

3-2.2.3 Decreases of More Than 25 Percent. Should the actual quantity of an item of work covered by a Contract Unit Price, and constructed in conformance with the Plans and Specifications, be less than 75 percent of the Bid quantity, an adjustment in payment will not be made unless so requested in writing by the Contractor. If the Contractor so requests, payment will be made on the basis of an adjustment in the Contract Unit Price mutually agreed to by the Contractor and the Agency, or at the option of the Engineer, on the basis of Extra Work per 3-3; however, in no case will payment be less than would be made for the actual quantity at the Contract Unit Price nor more than would be made for 75 percent of the Bid quantity at the Contract Unit Price.

3-2.3 Stipulated Unit Prices. Stipulated Unit Prices may be used for the adjustment of Contract changes when so specified in the Special Provisions.

3-2.4 Payment for Overtime Work. Except as otherwise provided in this Section, the Contractor shall not receive additional compensation for overtime work; i.e., work in excess of eight (8) hours in any one calendar day or forty (40) hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the Engineer in writing. Additional compensation will be paid to the Contractor for overtime work only in the event extra work is ordered by the Engineer and the change order specifically authorizes the use of overtime work and then, only to such extent as previously approved by the Engineer.

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3-2.5 Failure to Agree on Prices. If mutual agreement cannot be reached, the Engineer may direct the Contractor to proceed on the basis of Extra Work per 3-3, except as otherwise specified in 3-2.2.2 and 3-2.2.3.

3-2.6 Eliminated Items. Should any Bid item be eliminated in its entirety, payment will be made to the Contractor for its actual costs incurred in connection with the eliminated item prior to notification in writing from the Engineer so stating its elimination.

If material conforming to the Plans and Specifications is ordered by the Contractor for use in the eliminated item prior to the date of notification of elimination by the Engineer, and if the order for that material can not be canceled, payment will be made to the Contractor for the actual cost of the material.

In this case, the material shall become the property of the Agency. Payment will be made to the Contractor for its actual costs for any further handling. If the material is returnable, the material shall be returned and payment will be made to the Contractor for the actual cost of charges made by the supplier for returning the material and for handling by the Contractor.

Actual costs, as used herein, shall be computed on the basis of Extra Work per 3 -3.

3-3 EXTRA WORK

3-3.1 General. The Contractor, in providing the services set forth herein, shall not perform work in excess of the project without the written permission of the Agency or its designated representative. All requests for extra work shall be by written change order submitted to the Agency and approved in writing prior to the commencement of the work.

3-3.2 Payment

3-3.2.1 Basis for Establishing Costs

3-3.2.2 Labor. The cost of labor shall be the actual cost for wages of workers performing the Extra Work at the time the Extra Work is done, plus employer payments of payroll taxes, workers compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs, resulting from Federal, State, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements.

The use of a labor classifications which would increase the Extra Work cost will not be permitted unless the Contractor establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental. The labor cost for foremen shall be proportioned to all of their assigned work and only that applicable to the Extra Work will be paid. Non-direct labor costs, including superintendence, shall be considered part of the markup specified herein.

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3-3.2.3 Materials. The cost of materials reported shall be at invoice or lowest current price at which such materials are locally available and delivered to the Work site in the quantities involved, plus sales tax, freight, and delivery.

The Agency reserves the right to approve materials and sources of supply, or to supply materials to the Contractor if necessary for the progress of the Work. No markup shall be applied to any material provided by the Agency.

3-3.2.4 Tool and Equipment Rental. No payment will be made for the use of tools that have a replacement value of \$200 or less.

Regardless of ownership, the rates to be used in determining equipment rental costs shall be the rates indicated in the California Department of Transportation publication entitled "Labor Surcharge and Equipment Rates" current edition at the time the Extra Work is performed.

The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Necessary loading and transportation costs for equipment used on the Extra Work shall be included.

If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the Agency than holding it at the Work site, it shall be returned, unless the Contractor elects to keep it at the Work site, at no expense to the Agency.

All equipment shall be acceptable to the Engineer, in good working condition, and suitable for the purpose for which it is to be used.

The reported rental time for equipment already at the Work site shall be the duration of its use on the Extra Work. This time shall begin when the equipment is first used on the Extra Work, plus the time required, to move it from its previous site and back, or to a closer site.

3-3.2.5 Other Items. The Agency may authorize other items which may be required on the Extra Work, including labor, services, material, and equipment. These items must be different in their nature from those required for the Work, and be of a type not ordinarily available from the Contractor or Subcontractors.

3-3.2.6 Invoices. Vendors' invoices for material, equipment rental and other expenditures shall be submitted with the daily report per 3-3.3. If the daily report is not substantiated by invoices or other documentation, the Agency may establish the cost of the item involved at the lowest price which was current at the time of the report.

3-3.2.7 Markup

(a) The overhead and profit markup for extra work by the contractor for their own work shall be:

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- a. Labor 20%
- b. Materials 15%
- c. Tools and equipment 15%

(b) The overhead and profit markup for extra work by the subcontractor for their own work shall be:

- a. Labor 20%
- b. Materials 15%
- c. Tools and equipment 15%

The prime contractor markup for subcontractor work shall be 5%. Regardless of the number of hierarchical tiers of Subcontractors, the 5% Contractor's mark-up may be applied one time only to the performing Subcontractor's total cost.

Costs for additional bond premiums shall be calculated at the end of the project and a change order for the credit or additional costs shall be paid at that time by Change Order.

3-4 CHANGED CONDITIONS. The Contractor shall not be entitled to the payment of any additional compensation for any act, or failure to act, by the Engineer, including failure or refusal to issue a change order, or for the happening of any event, thing, occurrence, or other cause, unless the Contractor shall have first given the Engineer due written notice of potential claim as required herein. The written notice of potential claim for changed conditions or any other cause shall be submitted by the Contractor to the Engineer upon their discovery and prior to the time that the Contractor performs any work giving rise to the potential claim and under no circumstances no later than by 5:00 P.M. of the business day following the discovery of the changed condition by the contractor. The Contractor's failure to give written notice of potential claim for changed conditions to the Agency upon their discovery, and before they are disturbed, shall constitute a waiver of all claims that may arise from the changed condition.

No action will be taken by the Contractor that may be the subject of an extra claim by the Contractor without written direction and approval of the Engineer.

Extra work that follows a changed condition must be documented and confirmed daily with the Engineer's representative. Failure to provide daily accounting at the end of each day to the Engineer's representative shall constitute a waiver of any claim for the work of that day. Failure to give the Engineer 24 hour notice of this work so it may be observed, documented and inspected shall constitute a waiver of any claim for the work of that day.

It is the intention and requirement of this section that differences between the parties arising under and by virtue of the Contract be brought to the attention of the Engineer at the earliest possible time, but no later than that which is required herein, in order that such matters may be settled, if possible, or other appropriate action may be promptly taken.

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The Contractor may take action on a changed condition without notice in an emergency situation only to prevent damage to or prevent loss of property and personal injury. Contractor must contact the Engineer as soon as possible to document the emergency situation and costs, but under no condition later than 4 hours from the emergency event. Failure to notify the Engineer in a timely fashion under an emergency situation will act as a waiver of any claim that may arise from the changed condition.

3-5 DISPUTED WORK/CLAIMS. If the Contractor and the Agency are unable to reach agreement, the Agency may direct the Contractor to proceed with the Disputed Work. Contractor shall promptly execute changes in the Work as directed in writing by Agency even when the parties have not reached agreement on whether the change increases the scope of Work or affects the Contract Price or Contract Time, if any.

All claims for additional compensation to the Contractor shall be presented in writing in accordance with the requirements of the Contract Documents and the State of California Public Contract Code, section 9204, partially inserted here:

(d)(1)(A) Upon receipt of a claim pursuant to this section, the public entity to

which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

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(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of

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this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2020, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2020, deletes or extends that date.

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Any claim shall include the following certification relative to the California False Claims Act, Government Code Sections 12650-12655:

“The undersigned certifies that the above statements are made in full cognizance of the California False Claims Act, Government Code sections 12650-12655. The undersigned further understands and agrees that this potential claim, unless resolved, must be restated as a claim in response to the Agency’s proposed final estimate in order for it to be further considered.”

By: _____ Title: _____

Date: _____

Company Name: _____

The Contractor shall submit substantiation of its actual costs to the Engineer within ten (10) working days after the work involving the changed condition (claim) is completed. Failure to do so shall be sufficient cause for denial of any claim subsequently filed on the basis of said notice of potential claim and shall act as a waiver of any such claim.

The Contractor will submit all claims in the following format:

1. Summary of claim merit and price, reference Contract Document provisions pursuant to which the claim is made.
2. List of documents relating to claim:
 - a. Specifications.
 - b. Drawings.
 - c. Clarifications (Requests for Information).
 - d. Schedules.
 - e. Other.
3. Chronology of events and correspondence.
4. Analysis of claim merit.
5. Analysis of claim cost.
6. Analysis of time impact analysis in CPM format.
7. Cover letter and Contractor’s certification of the claim, including claims from subcontractors of any tier, in accordance with Government Code sections 12650 and following.

3-6 DISPUTE RESOLUTION PROCEDURES

3-6.1 Informal Dispute Resolution. Prior to proceeding with mandatory mediation the Contractor shall attempt to resolve all disputes informally and complete the requirements of section 3-5.

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The Contractor is required to submit all claims before submitting the final invoice. The Contractor's failure to follow any and all procedures stated herein in a timely manner shall constitute a waiver of the claim and the Contractor shall have no standing to bring the claim against the Agency in a court of law.

The authority within the informal dispute resolution chain of command is limited to recommending a resolution of a claim to the Board. Actual approval a claim is subject to the change order provisions in the contract.

3-6.2 Mandatory Mediation. If a dispute arises out of, or relates to the Contract, or the breach thereof, and if said dispute cannot be settled through contract provisions provided for claim settlement or negotiations, the parties agree to first endeavor to settle the dispute in an amicable manner, using mandatory mediation subject to the following provisions:

- (i) The party seeking mediation shall deliver a written notice of demand to resolve the dispute by mediation to the adverse party in accordance with these Contract Documents. The response shall include a short and plain statement of the party's defense to the claim and shall also state whether the party agrees to the mediator chosen by the demanding party. In the event the parties cannot agree upon a mediator, JAMS shall select and name the mediator.
- (ii) The party seeking mediation shall deliver a written notice of demand to resolve the dispute by mediation to the adverse party and to JAMS before the final invoice is delivered to the Agency.
- (iii) **Delivery of an invoice labeled in any way as "final invoice" to the Agency shall constitute a waiver of all claims not already submitted by the Contractor and the Contractor shall have no standing to bring the claim against the Agency in a court of law.**
- (iv) The locale of the mediation shall be in San Diego, California.
- (v) In the event JAMS is no longer in business and there is no comparable successor, then the parties shall agree upon another arbitrator. If the parties cannot agree upon another arbitrator, then a single neutral mediator shall be appointed pursuant to Section 1281.6 of the Code of Civil Procedure.
- (vi) **The Contractor's failure to give timely notice of the request for mandatory mediation shall constitute a waiver of the claim and the Contractor shall have no standing to bring the claim against the Agency in a court of law.**

3-6.3 Conduct of Mediation Sessions

1. Mediation hearings will be conducted in an informal manner and discovery will not be allowed.

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2. The discussions, statements, or admissions will be confidential to the proceedings and will not be used for any other purpose as it relates to the party's legal position. The parties may agree to exchange any information they deem necessary.
3. Both parties must have an authorized representative attend the mediation. Each representative must have the authority to recommend entering into a settlement. Either party may have attorney(s), witnesses or expert(s) present. Either party may request a list of witnesses and notification whether attorney(s) will be present.
4. Any resultant agreements from mediation must be documented in writing. Mediation results and documentation, by themselves, must be "non-binding" and inadmissible for any purpose in any legal proceeding, unless such admission is otherwise agreed upon, in writing, by both parties. Mediators must not be subject to any subpoena or liability and their actions must not be subject to discovery.

3-6.4 Work Continuance. Unless otherwise agreed between the Agency and the Contractor in writing, the Contractor shall carry on the Work and maintain its progress during any dispute and the Agency shall continue to make payments to the Contractor for matters not in dispute in accordance with the Bid and Contract Documents.

3-6.5 Mandatory Assistance. If a third party dispute or litigation, or both, arises out of, or relates in any way to the Services provided under this contract, upon the Agency's request, the Contractor agrees to assist in resolving the dispute or litigation. The Contractor assistance includes, but is not limited to, providing professional consultations, attending mediations, arbitrations, depositions, trials or any event related to the dispute resolution, litigation, or both.

3-6.6 Attorney Fees Related To Mandatory Assistance. In providing the Agency with dispute or litigation assistance, the Contractor and or Subcontractors or their agents, officers, and employees may incur expenses and or costs. The Contractor agrees that any attorney fees and costs it may incur are not reimbursable.

3-6.7 Compensation for Mandatory Assistance. The Agency may reimburse the Contractor for reasonable fees and expenses incurred by the Contractor for any required assistance rendered in accordance with "Mandatory Assistance" as Extra Work. The Agency in its sole discretion shall determine whether these fees and expenses were necessary due to the conduct of or failure to act by the Contractor or Subcontractors or their respective agents, officers, and employees. If the Agency determines that the basis of the dispute or litigation in which these fees and expenses were incurred were the result of the conduct of or failure to act by the Contractor or Subcontractors or their respective agents, officers, and employees, in part or in whole, the Agency shall be entitled to be reimbursed for any payments made for these fees and expenses.

Reimbursement may be through any legal means necessary, including the Agency's withholding of payment.

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3-6.8 Costs Relating To The Weather Damage. The Contractor shall have no claims against the Agency for damages to any elements of the project resulting from the action of the elements, weather or nature. If, however, in the opinion of the Engineer, you have made all reasonable efforts to protect the Work, you may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of Work in accordance with Section 6, "PROSECUTION, PROGRESS, AND ACCEPTANCE OF THE WORK."

SECTION 4 - CONTROL OF MATERIALS

4-1 MATERIALS AND WORKMANSHIP

4-1.1 General. All materials, parts, and equipment furnished by the Contractor in the Work shall be new, high grade, and free from defects. Used or secondhand materials, parts, and equipment may be used only if so specified in the Special Provisions.

The quality of materials and workmanship shall be subject to approval by the Engineer. Materials and workmanship of quality not conforming to the requirements of the Specifications shall be considered defective and will be subject to rejection. Defective or non-compliant work or material, whether in place or not, shall be removed immediately from the Work site by the Contractor, at its expense, when so directed by the Engineer.

If the Contractor fails to replace any defective or damaged work or material after reasonable notice, the Engineer may cause such work or materials to be replaced. The replacement expense will be deducted from the amount to be paid to the Contractor.

4-1.2 Protection of Work and Materials

4-1.2.1 Property Rights in Material. Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil. All such materials shall become the property of the Agency upon being so attached or affixed.

4-1.3 Inspection Requirements

4-1.3.1 General. Except as specified in the Contract Documents, the Agency will bear the cost of testing locally produced materials and/or on-site materials and workmanship where the results of such tests meet or exceed the requirements indicated in the Standard Specifications and the Special Provisions. The cost of all other tests shall be borne by the Contractor.

The Contractor shall pay for the cost of any re-testing of materials for failure of the original test of any materials by the Agency deduction said costs from any payment due.

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The Contractor shall pay for the cost of any minimum “show up” costs of a materials testing technician that was called for by the Contractor but ultimately the Contractor work was not ready for the inspection. Any such costs shall be deducted from any amounts due to the Contractor.

At the option of the Engineer, the source of supply of each of the materials to be incorporated in the Work shall be approved by the Engineer before the delivery is started. All materials proposed for use may be inspected or tested at any time during their preparation and use. If, after incorporating such materials into the Work, it is found that sources of supply that have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved material from other approved sources. If any product proves unacceptable after improper storage, handling or for any other reason it shall be rejected, not incorporated into the work, and shall be removed from the project site all at the Contractor's expense.

Compaction tests may be made at any location along the work as deemed necessary by the Engineer.

Additional materials and fabricated items which require inspection at the source shall be as specified in the Special Provisions.

Steel pipe in sizes less than 18 inches (450mm) and vitrified clay and cast iron pipe in all sizes are acceptable upon certification as to compliance with the Specifications, subject to sampling and testing by the Agency. Standard items of equipment such as electric motors, conveyors, elevators, plumbing fixtures, etc., are subject to inspection at the Work site only. Special items of equipment such as designed electrical panel boards, large pumps, sewage plant equipment, etc., are subject to inspection at the source for performance testing only. Inspection at the source for other items shall be as specified in the Special Provisions.

4-1.3.2 Inspection by the Agency. The Agency will provide inspection and testing laboratory services within the continental United States within a 50-mile radius of the geographical limits of the Agency. Inspection and testing laboratory services beyond this radius or outside the continental United States shall be provided by the Contractor and approved by the Engineer.

4-1.3.3 Inspection of Items Not Locally Produced. When the Contractor intends to purchase materials, fabricated products, or equipment from sources located more than 50 miles (80km) outside the geographical limits of the Agency or outside the United States, an inspector or accredited testing laboratory approved by the Engineer, shall be engaged by the Contractor at its expense, to inspect the materials, equipment or process. This approval shall be obtained before producing any material or equipment. The inspector or representative of the testing laboratory shall evaluate the materials for conformance with the requirements of the Plans and Specifications. The Contractor shall forward reports required by the Engineer. No materials or equipment shall be shipped nor shall any processing, fabrication or treatment of such materials be done without proper inspection by the approved agent. Approval by said agent shall not

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relieve the Contractor of responsibility for complying with the requirements of the Contract Documents.

4-1.4 Tests of Materials. Before incorporation into the Work, the Contractor shall submit samples of materials, as the Engineer may require, at no cost to the Agency. The Contractor, at its expense, shall deliver the materials for testing to the place and at the time designated by the Engineer. Unless otherwise specified in the Special Provisions, all initial testing and a reasonable amount of retesting will be performed under the direction of the Engineer, and at no expense to the Contractor. If the Contractor is to provide and pay for testing, it will be so specified in the Special Provisions.

The Contractor shall notify the Engineer in writing, at least 15 days in advance, of its intention to use materials for which tests are specified, to allow sufficient time to perform the tests. The notice shall name the proposed supplier and source of material.

If the notice of intent to use is sent before the materials are available for testing or inspection, or is sent so far in advance that the materials on hand at the time will not last but will be replaced by a new lot prior to use on the Work, it will be the Contractor's responsibility to re-notify the Engineer when samples which are representative may be obtained.

Third party independent testing and quality control testing shall be performed within the United States.

4-1.5 Certificate of Compliance. A Certificate of Compliance shall be furnished to the Engineer prior to the use of any material or assembled material for which these Specifications so require or if so required by the Engineer.

The Engineer may waive the materials testing requirements of the Specifications and accept a Certificate of Compliance. Material test data may be required by the Engineer to be included with the submittal.

Materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The submission of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material into the Work which conforms to the requirements of the Contract Documents, and any material not conforming to the requirements will be subject to rejection by the Engineer whether in place or not.

4-1.6 Trade Names or Equals. Pursuant to Public Contract Code section 3400(b) the Agency may make a finding that is described in the invitation for bids that designates certain products, things, or services by specific brand or trade name.

Unless specifically designated in the Contract Documents, whenever any material, process, or article is indicated or specified by grade, patent, or proprietary name or by name of manufacturer, such Specifications shall be deemed to be used for the purpose of facilitating the

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description of the material, process or article desired and shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer for substitution any material, process or article which is substantially equal or better in every respect to what is specified in the Contract Documents.

Contractor shall submit written requests for substitution or any "equal" material, process or article, together with substantiating data, no later than thirty-five (35) days after award of the Contract or at the Pre-Construction meeting, whichever is first or earlier.

Provisions regarding submission of substitution requests shall not in any way authorize an extension of the Contract Time. If a proposed "equal" substitution is rejected, Contractor shall be responsible for providing the specified material, process or article without adjustment to the Contract Price or Contract Time. The burden of proof as to the equality of any material, process or article shall rest with the Contractor. The Agency has the complete and sole discretion to determine if a material, process or article is an "equal" material, process or article that may be substituted. Contractor shall furnish the specified item without change in the Contract Price if the Agency rejects the proposed substitution.

Information required to substantiate requests for substitutions of an "equal" material, process or article data shall include a signed affidavit from the Contractor stating that, and describing how, the proposed "equal" material, process or article is equivalent to that specified in every way except as listed on the affidavit. Substantiating data shall include any and all illustrations, specifications, and other relevant material, including but not limited to, catalog information which describes the requested substitute "equal" material, process or article, and substantiates that it is an "equal" to the specified material, process or article. The substantiating data must also include information regarding the durability and lifecycle cost of the proposed substituted "equal" material, process or article. Failure to submit all the required substantiating data, including the signed affidavit, to the Agency in a timely fashion will result in the rejection of the proposed substitution.

The Contractor shall bear all of the Agency's costs associated with the review of substitution requests, including review by design professionals.

The Contractor shall be responsible for paying all costs related to a substituted "equal" material, process or article.

Contractor is directed to the Special Conditions (if any) to review any findings made pursuant to Public Contract Code section 3400.

4-1.7 Weighing and Metering Equipment. Scales and metering equipment used for proportioning materials shall be inspected for accuracy and certified within the past 12 months by the State of California Bureau of Weights and Measures, by the County Sealer, or by a scale mechanic registered with or licensed by the County.

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The accuracy of the work of a scale service agency, except as stated herein, shall meet the standards of the Business and Professions Code and the Code of Regulations pertaining to weighing devices. A Certificate of Compliance shall be presented, prior to operation, to the Engineer for approval and shall be renewed whenever required by the Engineer at no cost to the Agency.

Scales shall be arranged so they may be read easily from the operator's platform or area. They shall indicate the true net weight without the application of any factor. The figures of the scales shall be clearly legible. Scales shall be accurate to within 1 percent when tested with the plant shut down.

Weighing equipment shall be so insulated against vibration or moving of other operating equipment in the plant area that the error in weighing with the entire plant running will not exceed 2 percent for any setting nor 1.5 percent for any batch.

4-1.8 Calibration of Testing Equipment. Testing equipment, such as, but not limited to pressure gages, metering devices, hydraulic systems, force (load) measuring instruments, and strain-measuring devices shall be calibrated by a testing agency acceptable to the Engineer at intervals not to exceed 12 months and following repairs, modification, or relocation of the equipment. Calibration certificates shall be provided when requested by the Engineer.

4-2 MATERIAL PROVIDED BY THE AGENCY. If applicable and upon written request of the Contractor, any materials furnished by the Agency shall be available to the Contractor within a reasonable time at the points designated in the Bid and Contract Documents. The cost of handling, including loading and unloading, transport, storing, and placing all materials after they are made available to the Contractor shall be considered as included in the contract prices for the items in connection with which they are used.

The Contractor shall be held responsible for all material provided to him and deductions will be made from any monies due to the Contractor to make good any shortages, damages and deficiencies, from any cause whatsoever, which may occur after materials are provided.

4-3 TAXES. The Contractor shall pay all sales, consumer, use and other similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted at the time bids are received, whether or not yet effective. The Total Bid Amount shall be deemed to include such taxes and the Contractor shall not be entitled to separate compensation for such taxes.

SECTION 5 - UTILITIES

5-1 LOCATION. Section 4216 and 4217 of the Governmental Code requires a Dig Alert Identification Number be issued before a "Permit to Excavate" will be valid. For your Dig Alert I.D. Number call Underground Service Alert Toll Free 1-800-422-4133 two working days before you dig.

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California Assembly Bill 3020 made it mandatory for all those who plan to do any digging or excavating to inform a regional notification center at least two days in advance. Failure to do so can result in a fine of several thousand dollars and in addition, the contractor could be charged for the repair of any damages to the underground facilities.

Copies of the construction drawings have been sent to the various utilities for their use in determining any necessary relocation of facilities. Additionally, a request has been made to check said drawings for errors, omissions or discrepancies.

The Agency and relevant utility companies have, by a search of known records, endeavored to locate and indicate on the Plans, all utilities that exist within the limits of the work. However, the accuracy and/or completeness of the nature, size and/or location of utilities indicated on the Plans is not guaranteed or warranted by the Agency or utility company.

Excavation: Any operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of tools, equipment, or explosives in any of the following ways: grading, trenching, digging, ditching, drilling, augering, tunneling, scraping, cable or pipe plowing and driving, or any other way.

Global Positioning System: A satellite based navigation system providing geolocation and time information to a global positioning system (GPS) receiver where there is an unobstructed line of sight to 4 or more GPS satellite.

Submit the following as action submittals:

1. A memo from the subsurface locator company that their representative has read the subsurface locator specification and subsurface locator company can provide the services, report and electronic file. Provide the name of the representative of the company
2. Operator's certificate of compliance

Submit, as an informational submittal, a list of subsurface locating equipment to use in locating subsurface facility with the designated personnel who will operate the subsurface locating equipment. The personnel must be certified to use the subsurface equipment.

Submit a report for approval as an action submittal before disturbing existing grade. Must notify engineer 48 hours before the designated personnel performs the subsurface locating of facilities. The report must consist of:

1. The attributes of the located subsurface facility must consist of:
 - 1.1. Type of subsurface facility
 - 1.2. Depth
 - 1.3. Size
 - 1.4. Owner
 - 1.5. Any pertinent information
2. Anomalies

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3. Using a layout plan sheet or aerial photo:

3.1. Identify the location of the excavation and area of performing subsurface locating

3.2. Identify the subsurface facility 3 feet on each side of the excavation

3.3. For a spot location, identify the subsurface facility in a 6 foot diameter of the excavation

4. A note stating the accuracy of the depth. The accuracy of the depth must consist of:

4.1. Subsurface utility engineering (SUE) quality level (A to D)

4.2. Technology used to identify the subsurface facility

5. A signature from the company responsible for identifying and locating subsurface facility from any of the following:

5.1. Foreman

5.2. Field supervisor

5.3. Owner

Allow 10 days for report approval.

A signed copy of your report will be returned for your file with a notice for excavation to proceed.

The report must be approved before excavation.

After the installation of subsurface facility, you must provide a digital file as an action submittal. The digital file consists of:

1. A digital file for geographic information system mapping input

2. A digital file created using a computer-aided design mapping software

87-1.01D(3) Qualification

87-1.01D(3)(a) General

The operator may be rejected if the person fails to locate all subsurface facilities at a Departments' designated location.

87-1.01D(3)(b) Subsurface Locator Personnel

The operator must demonstrate the ability of locating subsurface facilities at a Department's designated location.

The operator must have approval of the Department before subsurface locating any other location on the jobsite.

Notify the Engineer 5 business days before the designated demonstration.

No locating of subsurface facilities may proceed unless the demonstration at the designated location is approved.

You must allow 5 business days for approval of the demonstration at the designated location.

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If the demonstration at the designated location is not successful, another location must be provided by the Engineer.

If the second designated location is not successful, the subsurface locator company must be rejected.

Approval from the Department must be received prior to subsurface locating any other location on the jobsite.

87-1.01D(4) Certification

The operator of the equipment for subsurface locating must be certified. Submit an operator's certificate of compliance.

The certification must be two of the following:

1. 300 hours of on-the-job training
2. Certification from equipment manufacturer
3. Classroom training from an independent subsurface locator training company

Previous experience in subsurface locating from other subsurface locating companies is acceptable as part of the on-the-job training.

The operator must have worked at the current subsurface company for 1-year minimum operating various subsurface locating equipment.

87-1.03X Subsurface Locators

87-1.03X(1) General

Only certified operators using approved equipment are allowed to locate subsurface facility.

Locate all subsurface facility in areas of electrical work affected by your activity using 2 different types of subsurface facility locator technologies. All subsurface facilities include other government agencies and utilities.

Ground penetrating radar or a subsurface imaging technology must be used. For the second type, you may use radiography, electromagnetic tracing, and ultrasonic tracing. All other methods must be approved.

The device you will use must not damage the subsurface facility. Do not use any method that may release hazardous material into the ground.

87-1.03X(2) Pre-installations

For excavation on a spot location, mark out the location of the subsurface facility in a 6 foot diameter.

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For excavation other than a spot location, mark out the subsurface facility 3 feet on each side.

Mark on the existing grade the subsurface facility identified by the subsurface locator before any disturbance of the existing grade. The scanned area must be shown on the action submittal report.

The marking of the subsurface facility must be maintained until the disturbance of the existing grade. Marking that is obliterated or washed out must be re-identified by the subsurface locator.

Collect the data for the location (GPS coordinates), type of facility, depth, size (if available), quantity (if available), type of system (if known), and any pertinent information; anomalies; quality level; method used to identify quality level and the date locating the existing subsurface facility. The collected data must be included into the digital files.

87-1.03X(3) Post-installations

Collect data for the newly installed subsurface facility before the excavation is backfilled to final grade. For boring, jacking or tunneling methods, obtain the data from the equipment operator or obtain the data with other approved methods.

After backfilling the excavation, mark on the final grade the newly installed subsurface facility.

The marking of the existing and newly installed subsurface facility that are obliterated or washed out must be re-identified by the subsurface locator. The marking of the subsurface facility must be maintained until the Department closes the Contract.

The collected data for the new subsurface facility must consist of:

1. Location (GPS coordinates)
2. Depth
3. Type of facility
4. Quantity
5. Size
6. Type of system
7. Subsurface utility engineering (SUE) quality level (A to D)

87-1.03X(4) Digital Files

Using a sub-meter GPS receiver and the WGS 84 global positioning system coordinates, locate the subsurface facility for both the existing subsurface facility and the newly installed subsurface facility within 3 feet accuracy. There must be a minimum of 4 satellites in the vicinity and optimum environmental condition for receiving information from the global positioning system's satellites when using the global positioning system device.

Include a note stating the accuracy of the depth.

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Coordinates must be read at the center of pull boxes, cabinet foundations, standard foundations, and service equipment enclosure foundations.

Provide a digital file for geographic information system (GIS) mapping input. The attributes of the line and symbol in the digital file must consist of:

1. GPS coordinates of the subsurface facility consist of
 - 1.1. Conduit
 - 1.2. Pull boxes
 - 1.3. Cabinet foundations
 - 1.4. Service equipment enclosure foundations
 - 1.5. Standard foundations
2. The subsurface facility must have these individual attributes:
 - 2.1. Type of facility (if available)
 - 2.2. Depth
 - 2.3. Size (if available)
 - 2.4. Quantity (if available)
 - 2.5. Owner
 - 2.6. Any pertinent information
3. Anomalies
4. Subsurface utility engineering (SUE) quality level (A to D)
5. Methodology used to identify quality level
6. Date of locating

Use the Department standards to identify a symbol.

The digital file must be created using a computer-aided design mapping software or a geographic information system mapping software. The data must be geo-referenced with attributes.

Use color standard from the American Public Works Association Uniform color code when drawing a line or symbol to identify a subsurface facility in the digital file.

Identify Caltrans facility and non-Caltrans facility. When the owner of the non-Caltrans facility is known include into the digital file otherwise identify with "UNKNOWN".

87-1.03X(5) Demonstration

87-1.03X(5)(a) General

Notify the Engineer 5 business days prior to a demonstration.

You must mark the area for the subsurface locator company to perform subsurface locating and this must be done in the presence of the Engineer.

Make corrections, adjustments, resubmittals, and re-markings if the demonstration is not successful.

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87-1.03X(5)(b) Pre-installation

A successful demonstration is required before the Department will allow any excavation.

A visual inspection of the marking must be conducted at the proposed excavation site. The site must be marked with all subsurface facility. The marking must be legible to the Engineer.

Obliterated, illegible or missing markings will be rejected. Restore marking for re-inspection.

87-1.03X(5)(c) Post-installation

Obliterated, illegible or missing markings will be rejected. Restore marking for re-inspection.

The Department will collect a minimum of 3 georeferenced samplings of the marking. The 3 samplings will be compared to the submitted digital file.

The digital file will be rejected when 2 of the 3 georeferenced subsurface facility are 4 or more feet away from the Department's sampling.

Resubmit the digital file when rejected.

IT IS ANTICIPATED THAT NOTIFICATION OF THE UTILITIES AND “UNDERGROUND SERVICE ALERT” WILL RESULT IN FIELD MARKING OF UTILITY MAINS BUT MOST LIKELY WILL NOT RESULT IN COMPLETE MARKING OF UTILITY SERVICE LATERALS.

Utility markings to be established by the Electrical Maintenance Department staff at Caltrans for any excavation inside Caltrans Right of Way.

The Contractor shall pothole all underground utilities which are shown on the Plans, assumed to exist per this section, or marked in the field by utility owners as being within 5 feet horizontal distance from the edge of any planned project sewer, water main, storm drain, electrical conduit, gas main, telephone conduit, cablevision conduit, irrigation conduit alignment, or other conduit of any type. The potholes shall be at all crossings of each utility and at one hundred (100) foot maximum intervals along each utility.

This potholing shall be done as a **first order of work** and time shall be allowed for the Engineer to field check the location of such utilities to make certain that they will not interfere with the proposed improvements. The Contractor shall backfill and patch these potholes immediately after establishing those locations. The backfill shall conform to the relative compaction requirements for trenches. The Contractor shall maintain all patches a smooth, firm traversable surface fit for the use of that surface at all times until the permanent repair or improvement is installed.

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The Contractor must fill all potholes on the same day of excavation, and, if no trenching is performed within 10 Working Days, fully restore all potholes and any damaged surrounding areas to their original condition unless otherwise allowed by the Engineer.

The Contractor must notify the Engineer, in writing, of any conflicts between existing utilities and the proposed work a minimum of 5 Working Days, and 300' in advance of the work to provide adequate time, and space for any changes to the work needed to avoid unforeseen conflicts. You must perform utility location far enough in advance of the Work to provide the written notification specified in this subsection.

The Contractor shall contact and coordinate with the utility owner for the relocation and/or replacement of their facility within the work area and determine the extent and time required for any and all relocations and for reconstruction of utility facilities. This coordination includes, but is not limited to, holding and chairing regular utility coordination meetings to the satisfaction of the Agency.

Nothing herein shall be deemed to require the Agency to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings, meters, and junction boxes, on or adjacent to the site of the construction; however, nothing herein shall relieve the Agency from identifying mains or trunk lines in the drawings and specifications. The Agency shall reserve its right against any utility for delays, which are the responsibility of the utility and for any obligation impaired on the utility either by law or by contract to pay the cost of removal or relocation of existing utility facilities.

If the Contractor, while performing the Contract, discovers utility facilities not identified by the Agency in the Contract drawings or specifications, he/she shall immediately notify the Agency and utility company in writing.

In all cases of alteration or relocation of service connections, the Contractor shall notify the customer being affected a minimum of four (4) hours prior to said alteration or relocation, and service connection shall be returned to service in an amount of time not to exceed four (4) hours or as agreed between the parties.

Damage to any existing utility by the contractor that is discovered after the acceptance of the work by the Agency shall be repaired by the Contractor at the contractor's expense and to the satisfaction of the utility company that owns the damaged improvement.

No claim for additional compensation or unforeseen delay will be considered for the Contractor's failure to adequately locate existing utilities, including service laterals, in the vicinity of proposed improvements as described herein.

The Contractor shall be responsible for detecting, determining and marking in the field the alignment of utility service (sewer, water, gas, etc.) laterals in the vicinity of proposed excavation,

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boxes, pads, and streetlights. This will include whatever research, excavation, electronic detection potholing or testing which is necessary to make this determination. This will be done prior to marking out and constructing the proposed improvements, in order to allow for placement and/or adjustment of trench, box, and pad locations due to actual field conditions.

The Contractor shall keep two (2) as-built drawings for all located utilities. One set of as-built drawings shall be delivered to the Engineer upon completion of the potholing.

5-2 PROTECTION. The Contractor shall not interrupt the service function or disturb the support of any utility without authority from the utility owner or direction from the Engineer. Valves, switches, vaults, and meters shall be maintained readily accessible for emergency shutoff.

Where protection is required to ensure support of utilities located as shown on the Plans or in accordance with 5-1, the Contractor shall, unless otherwise specified on the Plans or in the Special Provisions, furnish and place the necessary protection at its expense.

Upon learning of the existence and location of any utility omitted from or shown incorrectly on the Plans, the Contractor shall immediately notify the Engineer in writing. When authorized by the Engineer, support or protection of the utility will be paid for as provided in 3-2 or 3-3.

The Contractor shall immediately notify the Engineer and the utility owner if any utility is disturbed or damaged. The Contractor shall bear the costs of repair or replacement of any utility damaged if located in accordance with 5-1.

When placing concrete around or contiguous to any non-metallic utility installation, the Contractor shall at its expense:

- a) Furnish and install a 2-inch (50mm) cushion of expansion joint material or other similar resilient material; or
- b) Provide a sleeve or other opening which will result in a 2-inch (50mm) minimum-clear annular space between the concrete and the utility; or
- c) Provide other acceptable means to prevent embedment in or bonding to the concrete.

Where concrete is used for backfill or for structures which would result in embedment, or partial embedment, of a metallic utility installation; or where the coating, bedding or other cathodic protection system is exposed or damaged by the Contractor's operations, the Contractor shall notify the Engineer and arrange to secure the advice of the affected utility owner regarding the procedures required to maintain or restore the integrity of the system.

The contractor shall provide support for all utilities that require support in a manner that is approved by the owner of such utility. It is the contractor's sole responsibility to come up with the appropriate method to provide support to all crossing utility.

The fact that existing utilities and improvements, either above or below the ground surface, are not shown on the drawings shall not relieve the Contractor of liability for complete and careful

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protection of said utilities or improvements from damage as specified herein. All repairs to damaged utilities or improvements shall be inspected and approved by an authorized representative of the utility and/or improvement Owner before being concealed by backfill or other work.

The Contractor shall notify the utility company in a manner and time in accordance with that particular utility company's policy of any conflicts or work in proximity of utility lines or conduits that require special notification or oversight. Failure to timely notify and coordinate with any given utility will not be a reason to extend the project time.

If a private service is interrupted due to contractor damage of a given utility, the contractor shall immediately repair and restore or ensure the repair and restoration of that service to the user. The contractor shall notify that user immediately of the interruption and an approximate time that the service will be restored.

All cost for locating and protecting existing utilities, and coordinating with utilities including management, supervision, labor, equipment, materials, ancillary work, overhead and profit shall be included in the various line items of work and there shall be no additional costs to the Agency.

CALL DIG ALERT BEFORE YOU DIG

1-800-422-4133

For the Contractor's information, the following companies are listed for initial contacts concerning the above requirements and coordination of new and/or existing utility operations for the project:

UTILITY COMPANY CONTACT LIST

COX COMMUNICATIONS

5159 Federal Blvd.
San Diego, CA 92105-5486

Attn: Susan Schutzman, Government Liaison

E-Mail: susan.schutzman@cox.com

Tel: (619) 266-5605

Mobile: (619) 318-1926

Fax: (619) 266-5026

EDCO DISPOSAL

6670 Federal Blvd.
Lemon Grove, CA 91945

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Attn: Carl Scherbaum, Division Manager
E-Mail: cscherbaum@edcodisposal.com
Tel: (619) 287-5696 ext. 4103
Fax: (619) 287-5242

AT&T CALIFORNIA**

South Construction & Engineering
7337 Trade St. Room 5685
San Diego, CA 92121

Attn: Sandi Marks, Government Liaison
Tel: (858) 886-1600
Fax: (858) 653-4798
E-Mail: sw3812@att.com

SAN DIEGO GAS & ELECTRIC

8315 Century Park Ct., CP22A
San Diego, CA 92123

Attn: Debora Ritch, Sr. Government Liaison
Tel: (858) 636-3968
Fax: (858) 636-5714
E-Mail: dritch@semprautilities.com

Attn: Jaime Llamas, Project Management
Tel: (858) 547-2009
Mobile: (858) 518-5493

SAN DIEGO GAS & ELECTRIC, Street Lighting Department

8306 Century Park Court Mail Stop 42J
San Diego, CA 92123

Attn: Linda Bustard
Tel: (858) 654-8364
Fax: (858) 654-8267
E-Mail: streetlighting@semprautilities.com

SWEETWATER AUTHORITY

P.O. Box 2328
National City, CA 91912-2328

Attn: Luis Valdez, P.E.
Tel: (619) 409-6751

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E-Mail: lvaldez@sweetwater.org

Attn: Mike Wallace, P.E., P.L.S., C.S.E

Tel: (619) 409-6884

E-Mail: mwallace@sweetwater.org

METROPOLITAN TRANSIT SYSTEM (MTS)

1255 Imperial Ave., Ste. 1000

San Diego, CA 92101

Attn: Héctor Solimán-Valdez

Tel: (619) 238-0100 (General Number)

Tel: (619) 557-4529 (Direct)

E-Mail: hector.soliman-valdez@sdmts.com

Attn: Beverly Neff, Supervisor of Passenger Facilities, Transportation Planner

100 16th St.

San Diego, CA 92101

Tel: (619) 595-7037 (Direct)

Fax: (619) 398-9502

E-Mail: Beverly.neff@sdmts.com

CROWNCastle NETWORKS

300 Spectrum Center Dr., Ste. 1200

Irvine, CA 92618

Attn: Laird Stabler, Project Manager, Site Modification

Tel: (303) 880- 1233

E-Mail: laird.stabler@crowncastle.com

E-Mail: fiber.dig@crowncastle.com conflict checks

MEDIA 3 COMMUNICATIONS

Attn: Ronnie Nollet, Outside Plant Operations Manager

Tel: (619) 829-5771

E-Mail: rnollet.m3c@gmail.com

E-Mail: rnollet.m3c@gmail.com conflict checks

FOR FIELD ISSUES DURING ACTUAL CONSTRUCTION PHASE:**COX COMMUNICATIONS**

5159 Federal Blvd.

San Diego, CA 92105

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Attn: Robert Mote, Public Works Planner

Tel: (619) 266-5514

Fax: (877) 873-2377

E-Mail: Robert.mote@cox.com

AT&T California

South Construction & Engineering

7337 Trade St.

San Diego, CA 92121

Attn: Sandi Marks, Government Liaison Manager

Tel: (619) 574-2810

E-Mail: sw3812@att.com

Attn: Andrew Sanchez-Aldana, OSP/20A Engineer

Tel: (619) 266-4648

E-Mail: as3249@att.com

SAN DIEGO GAS & ELECTRIC

8315 Century Park Court

San Diego, CA 92123

Attn: Jaime Llamas, Project Manager

Tel: (858) 547-2009

Mobile: (858) 518-5493

SWEETWATER AUTHORITY

P.O. Box 2328

National City, CA 91912

Attn: Luis Valdez, P.E., Engineering Manager

Tel: (619) 409-6751 or (619) 420-1413

Mobile: (619) 315-9074

Fax: (619) 425-7469

E-Mail: lvaldez@sweetwater.org

EMERGENCY NUMBERS 24 HOURS NUMBERS TROUBLE DISPATCH

SDGE:	ELECTRICAL PROBLEMS (24/7)	1-800-611-7343
SWA:	DURING WORKING HOURS	(619) 420-1413
	AFTER WORKING HOURS	(619) 420-1230
AT&T:	24/7	611

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NATIONAL CITY ENGINEERING DIVISION

Tel: (619) 336-4380

Fax: (619) 336-4397

NATIONAL CITY PUBLIC WORKS DIVISION

Tel: (619) 336-4580

Fax: (619) 336-4397

NATIONAL CITY POLICE DEPARTMENT DISPATCH

Tel: (619) 691-5151

5-3 REMOVAL. Unless otherwise specified in the Special Provisions, the Contractor shall remove all interfering portions of utilities shown on the Plans as "abandoned" or "to be abandoned in place". Before starting removal operations, the Contractor shall ascertain from the Agency whether the abandonment is complete, and the costs involved in the removal and disposal shall be included in the Bid for the items of work necessitating such removals.

5-4 RELOCATION. When feasible, the owners responsible for utilities within the area affected by the Work will complete their necessary installations, relocations, repairs, or replacements before commencement of the Work by the Contractor. When the Plans or Special Provisions indicate that a utility installation is to be relocated, altered, or constructed by others, the Agency will conduct all negotiations with the owners and utility work will be done at no cost to the Contractor, except as otherwise specified in 301-1.6. Utilities which are relocated in order to avoid interference shall be protected in their position and the cost of such protection shall be included in the Bid for the items of work necessitating such relocation.

After award of the Contract, portions of utilities which are found to interfere with the Work will be relocated, altered or reconstructed by the utility owners, or the Engineer may order changes in the Work to avoid interference. Such changes will be paid for in accordance with 3-2 or 3-3.

When the Plans or Special Provisions provide for the Contractor to alter, relocate, or reconstruct a utility, all costs for such work shall be included in the Bid for the items of work necessitating such work. Temporary or permanent relocation or alteration of utilities requested by the Contractor for its convenience shall be its responsibility and it shall make all arrangements and bear all costs.

When the Plans or Specifications provide for the Contractor to alter, relocate, or reconstruct a utility, all costs for such work shall be included in the Bid for the items of work necessitating such work. Temporary or permanent relocation or alteration of utilities requested by the Contractor for its convenience shall be its responsibility and it shall make all arrangements and bear all costs.

The utility owner will relocate service connections as necessary within the limits of the Work or within temporary construction or slope easements. When directed by the Engineer, the

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Contractor shall arrange for the relocation of service connections as necessary between the meter and property line, or between a meter and the limits of temporary construction or slope easements. Payment for the relocation of such service connections shall be in accordance with 3-2 or 3-3. Payment will include the restoration of all existing improvements which may be affected thereby. The Contractor may agree with the owner of any utility to disconnect and reconnect interfering service connections. The Agency will not be involved in any such agreement.

5-5 DELAYS. The Contractor shall notify the Engineer of its construction schedule insofar as it affects the protection, removal, or relocation of utilities. Said notification shall be included as a part of the construction schedule in accordance with 6-1. The Contractor shall notify the Engineer in writing of any subsequent changes in the construction schedule that will affect the time available for protection, removal, or relocation of utilities.

The Contractor will not be entitled to damages or additional payment for delays attributable to utility relocations or alterations if correctly located, noted, and completed in accordance with 5-1.

The Contractor may be given an extension of time for unforeseen delays attributable to unreasonably protracted interference by utilities in performing work correctly shown on the Plans.

If the Contractor sustains loss due to delays attributable to interferences, relocations, or alterations not covered by 5-1, which could not have been avoided by the judicious handling of forces, equipment, or plant, there shall be paid to the Contractor such amount as the Engineer may find to be fair and reasonable compensation for such part of the Contractor's actual loss as was unavoidable and the Contractor may be granted an extension of time.

5-6 COOPERATION. When necessary, the Contractor shall so conduct its operations as to permit access to the Work site and provide time for utility work to be accomplished during the progress of the Work.

ADD the following:

Contractor shall coordinate its work with bus stop, bus shelter, bench, and trash can relocations, temporary bus stop closures during construction, and bus stop sign and post to be installed by Contractor but provided by MTS during the course of construction. Contractor shall include the timing and duration of such "agency work windows" in its Progress Schedule. Contractor must provide MTS with adequate written notice that the site has been or will be closed or relocated; including the date the relocation has been or will be complete. If requested by MTS, Contractor shall set-up a pre-construction meeting with MTS and the City's representative for each bus stop and furniture relocation no sooner than fourteen (14) working days prior to the start of the work. Contractor shall allow for and show the following outside "agency work window" durations in its Progress Schedule.

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Agency	Location	Allowance
MTS	National City Boulevard and W 33 rd St.	14 Working Days

All correspondence with MTS shall be directed to Jessica Duarte
Jessica Duarte
MTS
(619) 630 6309
Jessica.duarte@sdmts.com

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-1. CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK

6-1.1 Construction Schedule. The Contractor shall provide the construction schedule in PDF on a memory stick and on 11" x 17" paper format to the Engineer at the Pre-construction Meeting.

The contractor shall comply with the following construction schedule requirements.

6-1.2 Construction Schedule for Contracts Exceeding \$500,000 in Value. The Contractor shall be responsible for developing, coordinating, revising, updating, and maintaining the cost loaded construction schedule (Schedule) utilizing the Critical Path Method (CPM).

Schedule updates shall be provided within 5 days of the Engineer's written approval of changes to the scope of work or critical path items.

The Contractor shall provide complete Schedule updates or Schedule confirmations once a month for the duration of the project that are subject to the Engineer's review and approval under same conditions and requirements as the original Schedule.

Schedule versions shall be based solely on the Work as awarded, and shall exclude any substitute proposals even if the Contractor pursues a substitution in accordance with provisions of the Contract.

Total float is the number of days by which a part of the Work in the Schedule may be delayed from its early dates without necessarily extending the Contract Time. The Contract float is the number of days between the Contractor's anticipated date for early completion of the Work, or specified part, and the corresponding Contract Time. Total float and Contract Time float belong to the Project and are not for the exclusive benefit of any Party. They shall be available to the Agency or the Contractor to accommodate changes in the Work or to mitigate the effect of events, which may delay performance or completion.

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The Schedule shall show a breakdown of Work into activities and relationships to the extent required to effectively manage the Work. The Schedule shall show the division of the Work into activities and specify the progression from the Notice to Proceed (NTP) to the end of the Contract Time.

The Schedule shall include appropriate time allowances and constraints for submittals, items of interface with Work performed by others, and specified construction, start-up and performance tests.

The Contractor shall include in the Schedule inclusive in the Contract Time allotted, 3 Working Days for the Agency to conduct a Walk-through.

The Contractor shall include in the Schedule inclusive in the Contract Time allotted 10 Working Days for generation of the Punchlist. The Contractor shall Work diligently to complete all Punchlist items within 20 Working Days after officially being provided the Punchlist by the Engineer.

If the Contractor modifies or changes the Schedule, for Change Order Work or otherwise, the Engineer shall be notified in writing with an explanation.

Comments made by the Engineer on the Schedule during review will not relieve the Contractor from compliance with requirements of the Contract. The Engineer may request that the Contractor and major Subcontractors (defined herein as being any Subcontractor or Supplier with 5% or more of the value of the Contract) participate in review of any Schedule submission. The Schedule revisions shall be submitted within 10 Working Days after the Engineer's review.

The Schedule shall show work to be done by the Agency personnel, such as but not limited to, submittal reviews (separate tasks for each), sewer televising, water main connections, water testing, and operational performance tests as separate tasks. The Schedule shall show appropriate time allowances for Work performed by other agencies.

If completion of any part of the Work, delivery of equipment or materials, or provision of the Contractor submittals is behind schedule and will impact the completion date of the Work, the Contractor shall submit a written recovery plan acceptable to the Engineer for completing the Work by the current Contract completion date.

The Contractor shall not be entitled to any extension in Contract Time, or recovery for any delay incurred because of extensions in an early completion date, until all Contract float is used, performance of the Work extends beyond the corresponding Contract Time, and a recovery plan is submitted demonstrating that the delay cannot be mitigated or offset through actions such as rescheduling Work.

Misrepresentation of actual Work durations in order to suppress available float time shall be cause for rejection of the Schedule and any revisions or updates.

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The Schedule shall include procurement related activities, which lead to the delivery of permanent materials to the Site in a timely manner. Procurement activities include activities such as preparation of Shop Drawings and Working Drawings, review and acceptance of Shop Drawings and Working Drawings, materials fabrication, materials delivery, etc., as appropriate.

The Schedule shall be reasonably balanced over the construction duration. Upon receipt, the Engineer will review the Schedule and provide comments, as appropriate, for revision by the Contractor.

Each Schedule activity shall be assigned a budget. Separate Bid items shall be separate activities. The Schedule shall specify costs for each phase of the Contract. The cost value of all Schedule activities shall equal the Contract values shown in the Bid both individually and in total and include Change Orders.

If the Engineer questions the logic of the Schedule, the Engineer may at any time request a Schedule narrative that describes the approach to the Work and the rationale used to develop the Schedule relationships and logic.

When specified in the Contract Documents, the specified Plant Establishment Period is included in the stipulated Contract Time and will begin with the acceptance of the installation of the re-vegetation plan in accordance with the Special Provisions.

A Schedule showing the project duration longer than the specified contract duration will not be acceptable and will be grounds for determination for default by Contractor.

The Schedule will show the Contractor's plan to support and maintain the project for the entire contractual time span of the project. Should the Contractor propose a project duration shorter than contract duration, a complete Schedule must be submitted, reflecting the shorter duration, in complete accordance with all schedule requirements of Section 6-1, Construction Schedule and Commencement Of The Work. The Engineer may choose to accept the Contractor's proposal of a project duration shorter than the duration specified; provided the Agency is satisfied the shortened Schedule is reasonable and the Agency and all other entities, public and private, which interface with the project are able to support the provisions of the shortened Schedule. The Agency's acceptance of shortened project duration will be confirmed through the execution of a contract change order revising the project duration and implementing all contractual requirements including liquidated damages in accordance with the revised duration.

The Schedule is subject to the review of the Engineer. The Engineer's determination that the Schedule proposed by the Contractor complies with the requirements of these General Provisions may be a condition precedent to issuance of the Notice to Proceed by the Engineer. If the Engineer determines that the Schedule does not meet the requirements of these specifications the Contractor shall correct the Schedule to meet these specifications and resubmit it to the Engineer. Failure of the Contractor to obtain the Engineer's determination that

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the initial Schedule proposed by the Contractor complies with the requirements of these supplemental provisions within thirty (30) working days after the date of the preconstruction meeting shall be grounds for termination of the contract per Section 6-4, Default by the Contractor. Days used by the Engineer to review the initial Schedule will not be included in the working days.

The original Schedule will be reviewed by the Engineer and returned to the Contractor with comments within twenty (20) working days of submittal.

Schedule updates will be reviewed by the Engineer and returned to the Contractor with comments within five (5) working days of submittal. If the Contractor submits a Schedule with more than 10% changes the Engineer will review and return the Schedule with comments within ten (10) days of submittals. If required by the Engineer, the Contractor will resubmit a Schedule addressing any comments by the Engineer within 5 working days. The resubmitted Schedule will be reviewed by the Engineer and returned to the Contractor with comments within five (5) working days of resubmittal. This process and time requirements will continue as such until an acceptable Schedule is submitted or the Engineer declares the Contractor in Default.

The Notice to Proceed may not be issued by the Engineer if the changes of the comments are not submitted as required hereinbefore and marked "No Exceptions Taken" or "Make Corrections Noted" by the Engineer.

At any time during the contract the Engineer makes the determination that the Contractor is not performing the work in compliance with the approved Schedule, the Engineer may require the Contractor to resubmit an updated Schedule for review by the Engineer in compliance with the requirements stated herein.

The Contractor, at the sole discretion of the Engineer, may be considered as being in default of the contract under the provisions set forth in Section 6-4 , Default by the Contractor, if the Engineer's comments are not submitted as required hereinbefore and subsequently Schedule marked "No Exceptions Taken" by the Engineer.

Progress payments that are due under the contract are contingent upon the submittal of a Schedule or updated Schedule that is acceptable to the Engineer. The Agency may refuse to recommend the whole or part of any monthly payment if, in the Engineer's opinion, the Contractor's failure, or refusal to provide the required Schedule information precludes a proper evaluation of the Contractor's ability to complete Project within the Contract Time.

All costs for producing, editing, adjusting and updating the construction schedule shall be paid as the lump sum item for "Project Schedule", in the absence of that line item all such costs shall be included in the various items of work and there shall be no additional costs to the Agency.

If there is a line item for separate payment of the Schedule payment for the compliance with this section shall be paid as follows:

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1. 30% upon acceptance of the original Schedule.
2. Subsequent payments shall be equal in percentage to approved payments to date for all contract items in relation to the overall contract price.

Failure of the Contractor to provide proper schedule updates that are approved by the Engineer constitute a waiver by the Contractor of any and all claims for delay or extended overhead for any reason.

6-1.3 Construction Schedule for Contracts Less Than \$500,000 In Value

1. Provide a fully developed horizontal bar-chart type schedule.
2. Provide a separate time bar for each significant construction activity.
3. Provide a continuous vertical line to identify the first Working Day of each week.
4. Within each time bar, indicate estimated completion percentage in 10% increments. As Work progresses, place a contrasting mark in each bar to indicate actual completion.
5. Indicate graphically sequences necessary for completion of related portions of the Work.
6. Be of sufficient size to show data for the entire Contract Time.

6-1.4 Commencement of Work. Unless specified otherwise, you must start construction within 5 Working Days after the issuance of the Notice to Proceed (NTP) and diligently prosecute the Work to completion within the Contract Time. Do not start any construction activity at the site until the Pre-construction Meeting is held and the NTP has been issued by the Agency. Contract time shall start on the date identified in the NTP.

6-1.5 Pre-Construction Meeting. The Agency will schedule a Pre-Construction Meeting after the award and execution of the Contract and prior to construction. The Contractor (Principal and Project Superintendent) and any subcontractor for 5 percent or more of the Work shall attend and be prepared to provide and discuss the following information:

1. Contact names and numbers
2. Construction schedule, moratoriums and special events (if any)
3. Pre-NTP submittals as required
4. NTP issuance
5. Critical elements of the work
6. Project safety and emergency procedures
7. Water quality control
8. Utility coordination
9. Required permits
10. Coordination with other agencies
11. Subcontractors
12. Submittals and potential substitutions
13. Schedule of values
14. Payment process

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15. Survey requirements
16. Materials and delivery schedule
17. All other items identified in the Contract Documents

6-2 PROSECUTION OF THE WORK. To minimize public inconvenience and possible hazard and to restore street and other work areas to their original condition and state of usefulness as soon as practicable, the Contractor shall diligently prosecute the Work without interruption to completion for each specific location and for the project as a whole. If the Engineer determines that the Contractor is failing to prosecute the Work to the proper extent, the Contractor shall, upon orders from the Engineer, immediately take steps to remedy the situation. All costs of prosecuting the Work as specified herein shall be included in the Contract Price. Should the Contractor fail to take the necessary steps to fully accomplish said purposes, after orders of the Engineer, the Engineer may suspend the Work in whole or part, until the Contractor takes said steps.

If the Work is suspended through no fault of the Agency, all expenses and losses incurred by the Contractor during such suspensions shall be borne by the Contractor. If the Contractor fails to properly provide for public safety, traffic, and protection of the Work during periods of suspension, the Agency may elect to do so, and deduct the cost thereof from monies due the Contractor. Such actions will not relieve the Contractor from liability.

6-3 SUSPENSION OF THE WORK

6-3.1 General. The Work may be suspended in whole or in part when determined by the Engineer that the suspension is necessary in the interest of the Agency. The Contractor shall comply immediately with any written order of the Engineer. Such suspension shall be without liability to the Contractor on the part of the Agency except as otherwise specified herein.

6-3.2 Archaeological and Paleontological Discoveries. If discovery is made of items of archaeological or paleontological interest, the Contractor shall immediately cease excavation in the area of discovery and shall not continue until ordered by the Engineer. When resumed, excavation operations within the area of discovery shall be as directed by the Engineer.

Discoveries which may be encountered may include, but not be limited to, dwelling sites, stone implements or other artifacts, animal bones, human bones, and fossils.

The Contractor shall be entitled to an extension of time and compensation in accordance with 6-6.

6-4 DEFAULT BY THE CONTRACTOR

6.4.1 General. The Contractor shall be in substantial default prior to the acceptance of the Work if the Contractor:

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1. Becomes insolvent, assigns its assets for the benefit of its creditors, is unable to pay its debts as they become due, or is otherwise financially unable to complete the Work, or
2. Abandons the Work by failing to report to the Work site, or
3. Fails to diligently prosecute the Work to completion in accordance with the approved schedule, or
4. Disregards written instructions from the Engineer or materially violates provisions of the Contract Documents, or
5. Fails to prosecute the Work according to the schedule approved by the Engineer, or
6. Disregards laws or regulations of any public body having jurisdiction, or
7. Commits continuous or repeated violations of regulatory or statutory safety requirements.

Notices, and other written communications regarding default between the Contractor, the Agency, and the Surety shall be transmitted in accordance with 2-12.

6-4.2 Notice to Cure. The Agency will issue a written Notice to Cure the default to the Contractor and its Surety. The Contractor shall commence satisfactory corrective actions within 2 Working Days after receipt of the Notice to Cure. Failure to cure the noticed default shall be a substantial breach of contract and default by the Contractor.

6-4.3 Notice of Termination for Default. If the Contractor fails to commence satisfactory corrective action within the number of Working Days set in the Notice to Cure after receipt of the Notice to Cure, or to diligently continue satisfactory and timely correction of the default thereafter, then the Agency will recommend to the Board that the Contractor be found in default of the Contract and upon such finding by the Board:

- a) will terminate the Contractor's right to perform under the Contract by issuing a written notice of termination for default to the Contractor and its Surety,
- b) may use any materials, equipment, tools or other facilities furnished by the Contractor to secure and maintain the Work site, and
- c) may furnish labor, equipment, and materials the Agency deems necessary to secure and maintain the Work site.

The Contractor shall be entitled to no further payment until the remaining portion of the Work has been completed. The Contractor will be paid the actual amount due based on Contract Unit Prices or lump sum Bid and the quantity of the Work completed at the time of default, less damages caused to the Agency by the default of the Contractor.

Costs incurred by the Agency in performing the Contractor's work, plus a markup of 15% on those costs for overhead, shall be deducted from monies due or to become due to the Contractor. The Contractor shall pay to the Agency any amount by which those costs and markup exceed the unpaid balance of the Contract Price plus overhead costs incurred.

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6-4.4 Responsibilities of the Surety. Upon receipt of the written notice of termination for default, the Surety shall immediately assume all rights, obligations and liabilities of the Contractor under the Contract. If the Surety fails to protect and maintain the Work site, the Agency may do so, and may recover all costs incurred. The Surety shall notify the Agency that it is assuming all rights, obligations and liabilities of the Contractor under the Contract and all money that is due, or would become due, to the Contractor shall be payable to the Surety as the Work progresses, subject to the terms of the Contract.

Within 15 Working Days of receipt of the written notice of termination for default, the Surety shall submit to the Agency a written plan detailing the course of action it intends to take to remedy the default. The Agency will review the plan and notify the Surety if the plan is satisfactory. If the Surety fails to submit a satisfactory plan, or if the Surety fails to maintain progress according to the plan accepted by the Agency, the Agency may, upon 48 hours written notice, exclude the Surety from the premises, take possession of all material and equipment, and complete the Work in any way the Agency deems to be expedient. The cost of completing the Work by the Agency shall be charged against the Surety and may be deducted from any monies due, or which would become due, the Surety. If the amounts due under the Contract are insufficient for completion, the Surety shall pay to the Agency, within 30 days after the Agency submits an invoice, all costs in excess of the remaining Contract Price.

The provisions of this subsection shall be in addition to all other rights and remedies available to the Agency under the law.

6-4.5 Payment. The Surety will be paid for completion of the Work in accordance with Contract Documents less the value of damages caused to the Agency by acts of the Contractor and Surety.

6-5 TERMINATION OF THE CONTRACT FOR CONVENIENCE. The Agency may terminate the Contract in whole or, from time to time, in part, if it becomes impossible or impracticable to proceed, because of conditions or events beyond the control of the Agency e.g., if the Agency Council does not appropriate sufficient monies to fund the Contract.

The Agency will issue a written notice of termination for convenience in accordance with 2-12, "SPECIAL NOTICES." Upon receipt, the Contractor shall immediately proceed as follows:

- a) Stop Work immediately or in accordance with the Notice of Termination.
- b) Notify Subcontractors and suppliers to immediately cease their work and place no further subcontracts for materials, services, or facilities, except as necessary to complete any authorized continued portion of the Contract.
- c) Terminate all Subcontracts to the extent that they relate to the Work terminated.
- d) With approval by the Engineer, settle all outstanding obligations arising from the termination of subcontracts; the approval of which will be final for purposes of this section.
- e) As directed by the Engineer, transfer the title and deliver to the Agency, completed or partially completed drawings, plans, calculations, specifications and any other documents

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and records that, if the Contract had been completed, would be required to be furnished to the Agency.

- f) Complete performance of the Work not terminated.
- g) Take all necessary steps and actions to minimize all costs to the Agency as a result of the termination.
- h) Take any action that may be necessary, or that the Engineer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Agency has or may acquire an interest.

The Contractor will be paid without duplication for:

- a) Work completed in accordance with the Contract Documents prior to the effective date of termination for convenience;
- b) Reasonable costs incurred in settlement of terminated contracts with Subcontractors, suppliers and others; and
- c) Reasonable expenses directly attributable to termination.

The Contractor shall submit a final termination settlement proposal to the Agency no later than 90 days from the effective date of termination, unless extended, in writing, by the Agency upon written request by the Contractor.

If the Contractor fails to submit a proposal, the Agency may determine the amount, if any, due the Contractor as a result of the termination. The Agency will pay the Contractor the amount it determines to be reasonable. If the Contractor disagrees with the amount determined by the Agency as being reasonable, the Contractor shall provide notice to the Agency within 30 days of receipt of payment. Any amount due shall be as later determined by arbitration, if the Agency and the Contractor agree thereto, or as fixed in a court of law.

All settlements related to termination of the contract in accordance with this section will be subject to the approval of the Agency Board before ultimately becoming final.

6-5.1 Termination Settlement. After termination, the Contractor shall submit a final termination settlement proposal to the Engineer in the form and with the certification prescribed by the Engineer. The Contractor shall submit the proposal promptly, but no later than 6 months from the effective date of termination, unless extended, in writing, by the Engineer upon written request of the Contractor within this 6 month period.

If the Engineer determines that the facts justify it, a termination settlement proposal may be received and acted on after 6 months or any extension. If the Contractor fails to submit the proposal within the time allowed, the Agency may, in good faith, determine, on the basis of information available, the fair and reasonable amount, if any, due the Contractor as a result of the termination and pay the amount determined. If the Contractor does not agree that the amount determined by the Engineer is fair and reasonable and if the Contractor gives notice of such disagreement to the Agency in accordance with this subsection, within 30 days of receipt of

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payment, then the amount due shall be as later determined by arbitration, if the Agency and the Contractor agree thereto, or as fixed in a court of law.

6-5.2 Payment to the Contractor Due to Termination. Subject to 6-5.1, "Termination Settlement" the Contractor and the Engineer may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. The agreed amount may not exceed the total dollar amount authorized by the Agency as reduced by (1) the amount of payments previously made; and (2) the Contract Price of work not terminated. The contract shall be amended, and the Contractor paid the agreed amount. Subsection 6-5.3, "Failure to Agree on Payment," shall not limit, restrict, or affect the amount that may be agreed upon to be paid in accordance with this subsection.

6-5.3 Failure to Agree on Payment. If the Contractor and the Agency fail to agree on the whole amount to be paid because of the termination of Work, the Agency will pay the Contractor the fair and reasonable amounts determined in good faith by the Agency as follows, but without duplication of any amounts agreed on in accordance with 6-5.2, "Payment to Contractor Due to Termination:"

- a) The Contract Price for completed services accepted by the Agency not previously paid or adjusted for any saving of freight and other charges. The total of:
 - i. The costs incurred in the performance of the Work terminated, including initial costs and preparatory expense allocable thereto, but excluding any costs attributable to services paid or to be paid in accordance with 6-5.6, "Failure to Agree on Payment";
 - ii. The fair and reasonable cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the Contract if not included in subdivision "a", above;
 - iii. A sum, as provided in subdivision "a", above, determined by the Engineer to be fair and reasonable under the circumstances; however, if it appears that the Contractor would have sustained a loss on the entire contract, had it been completed, the Agency will allow no profit and shall reduce the settlement to reflect the indicated rate of loss.
- b) The reasonable costs of settlement of the Work terminated, including:
 - a. Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination of settlement proposals and supporting data;
 - b. The termination and settlement of subcontracts (excluding the amounts of such settlements); and
 - c. Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of property in which the Agency has or may acquire an interest.

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6-5.4 Determination of Amount Due the Contractor. In arriving at the amount due the Contractor in accordance with this section, there shall be deducted:

- a) The fair value of property destroyed, lost, stolen, or damaged that has become undeliverable to the Agency except to the extent the Agency expressly assumed the risk of loss;
- b) All un-liquidated advance or other payments to the Contractor under the terminated portion of this contract;
- c) Any claim which the Agency has against the Contractor under this contract; and
- d) The agreed price for or the proceeds of sale of materials, supplies, or other things acquired by the Contractor or sold under the provisions of this section and not recovered by or credited to the Agency.

6-5.5 Partial Termination. If the termination is partial, the Contractor may file a proposal with the Engineer for an equitable adjustment of the price(s) of the continued portion of the Contract. The Agency will make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this section shall be requested within 90 days from the effective date of termination, unless extended, in writing, by the Engineer.

6-5.6 Partial Termination Payments. The Agency may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the Contract if the Engineer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

If the total payments exceed amounts finally determined to be due, the Contractor shall repay the excess to the Agency upon demand, together with interest. Interest shall be at a rate of 6% per annum compounded daily and shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of disposition, or a later date determined by the Engineer because of the circumstances.

6-5.7 Records and Documents Relating to Termination. Unless otherwise provided in the Contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs, expenses, and settlement under this contract. The Contractor shall make these records and documents available to the Agency, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Engineer, photographs, microphotographs, and other authentic reproductions may be maintained instead of original records and documents.

6-5.8 Rights of The Agency Preserved. Where the Contract has been terminated by the Agency in accordance with 6-5, "Termination of Contract" the termination will not affect any rights or remedies of the Agency against the Contractor then existing or which may thereafter accrue. Any

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payment of monies paid to the Contractor by the Agency shall not release the Contractor from liability.

6-6 DELAYS AND EXTENSIONS OF TIME

6-6.1 General. If delays are caused by unforeseen events beyond the control of the Contractor, such delays will entitle the Contractor to an extension of the Contract time as provided herein, but the Contractor will not be entitled to damages or additional payment due to such delays, except as otherwise specified in 6-6.3. Such unforeseen events may include: war, government regulations, labor disputes, strikes, fires, floods, adverse weather or elements necessitating cessation of work, inability to obtain materials, labor or equipment, required Extra Work, or other specific events as may be further described in the Special Provisions.

No extension of time will be granted for a delay caused by the Contractor's inability to obtain materials unless the Contractor furnishes to the Engineer documentary proof. The proof must be provided in a timely manner in accordance with the sequence of the Contractor's operations and the approved construction schedule. Failure to order materials in a timely manner will not afford the Contractor any extension of contract time.

If delays beyond the Contractor's control are caused by events other than those mentioned above, the Engineer may deem an extension of time to be in the best interests of the Agency. The Contractor will not be entitled to damages or additional payment due to such delays, except as otherwise specified in 6-6.3.

If delays beyond the Contractor's control are caused solely by action or inaction by the Agency, such delays will entitle the Contractor to an extension of time per 6-6.2.

6-6.2 Damages Caused By Act Of Nature. As provided in §7105 of the California Public Contract Code, if this contract is not financed by revenue bonds, the Contractor shall not be responsible for the cost of repairing or restoring damage to the Project when damage was proximately caused by an act of God, in excess of 5% of the Contract Price if:

- a) The Project damaged was built and protected in accordance with the Contract requirements, and
- b) There are no insurance requirements in the Contract for the damages.

6-6.3 Extension of Time. Extensions of time, when granted, will be based upon the effect of delays to the Work. They will not be granted for non-controlling delays to minor portions of the Work unless it can be shown that such delays did or will delay the progress of the Work.

The Agency will not grant a claim for extension in Contract Time unless you can demonstrate through a Critical Path Method (CPM) analysis of the Schedule's critical path(s) that:

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- a. The increases in the time to perform or complete the Work, or specified part of the Work, beyond the corresponding Contract Time arise from unforeseeable causes beyond your control and without your fault or negligence, and
- b. Such causes in fact lead to performance or completion of the Work, or specified part in question, beyond the corresponding Contract Time, despite your reasonable and diligent actions to guard against those effects.

The Schedule analysis must use delay sub networks i.e., fragnets to show the impact of the Work that is the basis of the Claim on specific impacted critical path Schedule activities. Fragnet is a group of schedule network activities representing a delay or change event.

Where the Contractor or subcontractors are prevented from completing any part of the Work within the Contract Time (or milestones) due to delay to a "critical path" activity beyond your control or ours, an extension of the Contract Time (or Contract milestones) in an amount equal to the time lost on the critical path of the Project due to such delay will be the Contractor's sole and exclusive remedy for such delay.

6-6.4 Excusable Delays. To the extent any of the following events results in an actual delay in the Work affecting Work activities on the critical path, such will constitute an Excusable Delay, to the extent not set forth below, a delay will be considered an Inexcusable Delay:

- a) The Agency's failure or inability to make available any portion or the entire Site in accordance with the requirements of the Schedule.
- b) The Agency's failure or inability to obtain necessary zoning changes, variances, code changes, permits or approvals from any governmental authority, or failure to obtain any street or alley vacations required for the performance of the Work, except to the extent due to your fault or neglect as determined by the Engineer.
- c) Delays resulting from the acts or omissions of Separate Contractors, except to the extent Separate Contractors perform their work properly and in accordance with the Schedule.
- d) Delays resulting from Force Majeure.
- e) Differing, unusual or concealed site conditions that could not reasonably have been anticipated by you in preparing the Schedule.
- f) Delays resulting from the existence or discovery of hazardous materials or waste on the Site not brought to the Site by you.
- g) Delays resulting from changes in Applicable Laws occurring after the date of execution of the Contract;
- h) Delays occurring due to the Agency's acts or omissions and those within the Agency's control.
- i) Delays resulting from the Agency's mandated suspensions of the Work.

6-6.5 Payment for Delays. Pursuant to Section 7102 of the Public Contract Code, the Contractor will be compensated for damages incurred due to delays for which the Agency is responsible unless such claim is waived by the Contractor. Such actual costs will be determined by the

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Engineer. The Agency will not be liable for damages which the Contractor could have avoided by any reasonable means, such as judicious handling of forces, equipment, or plant. The determination of what damages the Contractor could have avoided will be made by the Engineer.

6-6.6 Written Notice and Report. If the Contractor desires payment for a delay as specified in 6-6.3 or an extension of time, it shall file with the Engineer a written request and report of cause within one (1) day after the beginning of the delay. The request for payment or extension must be made within 20 days of the beginning of the delay and before the specified completion date. Failure by the Contractor to file these items within the times specified will be considered grounds for refusal by the Agency to consider such request.

The Contractor shall provide written notice to the Engineer within ONE (1) hour of the beginning of any period that the Contractor has placed any workers or equipment on standby for any reason that the Contractor has determined to be caused by the Agency or by any organization that the Agency may otherwise be obligated by. The Contractor shall provide continuing daily written notice to the Engineer, each working day, throughout the duration of such period of delay. The initial and continuing written notices shall include the classification of each workman and supervisor and the make and model of each piece of equipment placed on standby, the cumulative duration of the standby, the Contractor's opinion of the cause of the delay and a cogent explanation of why the Contractor could not avoid the delay by reasonable means. Should the Contractor fail to provide the notice(s) required by this section the Contractor agrees that no delay has occurred and that it will not submit any claim(s) therefore.

6-6.7 Contract Time Extension and Schedule Analysis. A claim for extension in Contract Time will not be granted unless the Contractor can demonstrate through a Critical Path Method (CPM) analysis of the Schedule's critical path(s) that the increases in the time to perform or complete the Work, or specified part of the Work, beyond the corresponding Contract Time arise from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, and that such causes in fact lead to performance or completion of the Work, or specified part in question, beyond the corresponding Contract Time, despite the Contractor's reasonable and diligent actions to guard against those effects.

The Schedule analysis shall use delay sub networks ("fragnets") to show the impact of the Work that is the basis of the Claim on specific impacted critical path Schedule activities. Fragnet is a group of schedule network activities representing a delay or change event.

Where the Contractor is prevented from completing any part of the Work within the Contract Time (or milestones) due to delay to a "critical path" activity beyond the control of both the Agency and the Contractor, an extension of the Contract Time (or Contract milestones) in an amount equal to the time lost on the critical path of the Project due to such delay shall be the Contractor's sole and exclusive remedy for such delay.

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6-6.8 Event of Force Majeure (Event). Any party to this contract may be excused for any delay or failure to perform its duties and obligations except for obligations to pay money, caused by and to the extent that such failure or delay is caused by an Event.

If an Event causes a delay or failure in performance of only a portion of the obligations of a Party, then only that portion of performance that was delayed or prevented by such cause shall be deemed excused. Performance of all other obligations of a Party shall not be excused by an Event. Any delay or failure to perform shall only excuse the Party for a period no longer than the delay or failure in performance caused by such Event. The Contractor shall not be entitled to damages or additional payment for any delay caused by an Event.

6-7 TIME OF COMPLETION.

6-7.1 General. All time limits stated in the Contract Documents are of the essence of the Contract. The Contractor shall diligently and continuously prosecute the work to completion within (140) working days after the date of commencement of work as specified in the Notice to Proceed. Unless otherwise specified in the Contract Documents, the time of completion of the Contract shall be expressed in working days.

6-7.2 Contract Time Accounting. The Engineer will make a daily determination of each working day to be charged against the Contract time. These determinations will be discussed and the Contractor will be furnished a periodic statement showing the allowable number of working days of Contract time, as adjusted, at the beginning of the reporting period. The statement will also indicate the number of working days charged during the reporting period and the number of working days of Contract time remaining. If the Contractor does not agree with the statement, it shall file a written protest within 5 days after receipt, setting forth the facts of the protest. Otherwise, the statement will be deemed to have been accepted and any right to dispute the statement will be waived. Contract working day time shall include all actions by the Contractor including submittals, material procurement, completion of all work, punch-list work and completion of all administrative work including but not limited to certified payroll, delivery of warranties, training and delivery and acceptance of all other paperwork and materials identified in these contract documents. The Contractor shall be complete with all contract requirements before the expiration of the contract working days or liquidated damages will be assessed.

6-8 COMPLETION, ACCEPTANCE, AND WARRANTY

6-8.1 Completion. Upon completion of the project the Contractor shall submit a written assertion that the Work has been completed. If, in the Engineer's judgment, the Work has been completed in accordance with the Contract Documents, the Engineer will set forth in writing the date the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect and maintain the Work and to which liquidated damages will be computed if applicable.

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6-8.1.1 Requirements Preparatory To Requesting a Walk-through. Walk-through is the procedure used by the Agency to generate a Punch list prior to Acceptance.

The following items shall be required prior to requesting a walk-through:

1. Remove temporary facilities from the Site.
2. Thoroughly clean the Site.
3. Provide completed and signed Redlines in conformance with requirements stated herein.
4. Provide all material and equipment maintenance and operation instructions and/or manuals.
5. Provide all tools that are a permanent part of equipment installed in the Project.
6. Provide and properly identify all keys; construction and permanent.
7. Provide all final Special Inspection reports required by this contract and applicable codes and regulations.
8. Provide all items that this contract requires to be supplied as extra stock. All items shall be wrapped, sealed, or placed in a container as necessary to allow for storage by the Agency for future use. The amount specified in this contract shall be verified by the Agency and the Contractor.
9. Ensure all certified prevailing wage rate documents and all other documents required by this contract and applicable codes and regulations have been submitted.
10. The spare parts for the proposed irrigation system as specified in the Special Provisions (if applicable).
11. All salvaged materials have been delivered and accepted by the Agency or entity designated to receive them.
12. See other specification sections for additional requirements.

6-8.1.2 Walk-through and Punch list Procedure. The following procedure outlines the steps to be taken upon the Contractor's assertion that the Project is complete:

1. When the Contractor considers that the Work and Services are complete, the Contractor shall in writing notify the Agency that the Project is complete and request that the Agency perform a walk-through for generation of a Punch list. The Contractor shall notify the Agency at least 7 days in advance of the time the walk-through is to be performed.
2. The Agency will determine if the Contractor is ready for a walk-through by verifying whether the Contractor has provided or completed all items as required by 6-8.1, "Defective or non-compliant work," whether the Contractor has obtained the applicable certifications, and by evaluating completeness by inspecting the Project and the specified Work required by the Contract Documents.
3. If the Work includes underground sewer conduit installations, the inspection will include televising in accordance with 306-1.4.8, "Televising Sewer Mains and Storm Drains."
4. The Agency will facilitate a walk-through.
5. The Contractor shall make available at the Site for walk-through attendees the plans and specifications and the technical data such as submittals and equipment manuals.

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6. The Agency will generate the punch list within 15 Working Days from the date of the walk-through and submit it to the Contractor. The Agency will not provide a preliminary punch list.

7. If The Agency begins to generate a Punch list and finds the Project is not substantially complete as defined herein, the Agency will terminate the walk-through and notify the Contractor in writing.

8. If, at any time during the Agency's evaluation of the corrective Work required by the Punch list, the Agency discovers that additional corrective Work is required, the Agency may include that corrective Work in the Punch list. The Contractor shall be solely responsible for the Site until the Project is completely operational, all Punch list items have been corrected, and all operation and maintenance manuals have been accepted by the Agency.

9. The Agency will meet with the Contractor until all Punch list items are corrected. If the Contractor takes longer than 30 Working Days to complete the corrective Work, the Project shall be subject to re-evaluation.

10. During the 35-day stop notice/lien period that commences on the date the NOC is recorded, the Contractor shall submit to the Agency the retention billing. After the Agency receives the retention billing, the Agency will mail to the Contractor a "Release of Claims" form, which shall be completed by the Contractor and returned to the Agency before the retention will be released.

11. Upon Acceptance, the Contractor shall assemble and deliver to The Agency all records, documents, warranties, material certifications, bonds, guarantees, maintenance and service agreements, and maintenance and operating manuals. Written warranties, except manufacturer's standard printed warranties, shall be on the Contractor's and the Contractor's agents, material suppliers, installers, or manufacturer's letterhead, addressed to the Contractor. Warranties shall be submitted in the format described in this section, modified as approved by the Agency to suit the conditions pertaining to the warranty.

12. See other specification sections for additional requirements.

The cost of the Contractor's participation in the punch-list process shall be included in the various items of work and there shall be no additional costs to the Agency.

6-8.2 Defective and Non-Compliant Work. If the Agency finds the Work, or any part of the Work, to be defective, not compliant with contract documents or unsafe in any way whether or not manufactured, fabricated, installed, completed or overlooked and accepted by the Engineer, the Contractor must, in accordance with the Agency's written instructions and within the specified time limits, either correct the defective or non-compliant work, or, if it has been rejected by the Engineer, remove it from the Site and replace it with non-defective and conforming Work.

1. If, upon notice, the Contractor fails to immediately correct the defective or non-compliant work, or the Contractor fails to correct the defective or non-compliant work in a manner conforming to the Contract Documents, the Engineer may order the Contractor to stop all or part of the work on the Project. The Agency's right to stop the work does not give rise to any duty on the Agency's part to stop work for the Contractor's benefit or the benefit of any other party. The Contractor shall bear all direct and indirect costs and damages that result from the Agency's stop work notice.

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2. At the sole discretion of the Engineer, defective or non-compliant work may be accepted in lieu of requiring the Contractor to correct or remove and replace the defective or non-compliant work. However, the Contractor must bear all direct and indirect costs of the defective or non-compliant work, and the diminished value to the Project, as determined by the Engineer. If the Engineer's acceptance of defective or non-compliant work occurs prior to final payment, the Engineer will issue a Change Order incorporating the necessary revisions in the Contract Documents with respect to the defective or non-compliant work and indicating the appropriate decrease in the Contract Price.

3. If the Contractor fails to correct, remove, or replace defective or non-compliant work within 5 Working Days from the date of a written notice from the Engineer, the Engineer may proceed with any correction of defective or non-compliant work undertaken in accordance with this section. The Agency may take corrective action at any time in the event of an emergency or if the Engineer deems it necessary. The Agency may remedy after 5 working days from the date of written notice when the Contractor fails to correct the defective or non-compliant work in accordance with the Contract Documents, or when the Contractors fails to comply with any other provision of the Contract Documents.

4. When undertaking remedial action under this section, the Agency may: exclude the Contractor from all or part of the Site; take possession of all or part of the Work; suspend the Contractor's Work or Services; and incorporate into the Project all materials and equipment stored at the Site or for which the Agency has paid but the Contractor has stored elsewhere.

5. The Agency will not allow an extension of the Contract Time or milestones because of any delay in the performance of the work attributable to the Agency's undertaking remedial action to correct defective or non-compliant work.

6. If the Contractor completes the Project or portions of the Project prior to NOC, the Contractor must preserve equipment by developing and implementing a preventive maintenance program in compliance with manufacturer's recommendations.

7. The Contractor must repair or replace the traffic signal and lighting system equipment within 48 hours after notification of defects by the Engineer.

8. The Contractor shall reimburse the Agency for any claims, costs, losses, and damages incurred by the Agency in remedying any deficiency e.g., all costs of repair or replacement of Defective or non-compliant work and all costs of repair of any other Work on the Project destroyed or damaged by correction, removal, or replacement of Contractor's defective or non-compliant work.

6-8.3 Acceptance. Acceptance will occur after all of the requirements contained in the Contract Documents have been fulfilled. If, in the Engineer's judgment, the Contractor has fully performed

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the Contract, the Engineer will recommend to the Board that the Contractor's performance of the Contract be accepted.

6-8.4 Warranty. The Work shall be warranted by the Contractor against defective materials and workmanship for a period of 1 year from the date the project was deemed complete by the Engineer except for items listed herein for longer warranties.

The warranty period for specific items covered under manufacturers' or suppliers' warranties shall commence on the date they are placed into service at the direction of or as approved by the Engineer in writing.

All warranties, express or implied, from subcontractors, manufacturers, or suppliers, of any tier, for the materials furnished and work performed shall be assigned, in writing, to the Agency, and such warranties shall be delivered to the Engineer prior to acceptance of the Contractor's performance of the Contract.

The Contractor shall replace or repair defective materials and workmanship in a manner satisfactory to the Engineer, after notice to do so from the Engineer, and within the time specified in the notice. If the Contractor fails to make such replacement or repairs within the time specified in the notice, the Agency may perform the replacement or repairs at the Contractor's expense. If the Contractor fails to reimburse the Agency for the actual costs, the Contractor's Surety shall be liable for the cost thereof for the first year under the performance bond. The Contractor shall provide warranty bonds acceptable to the Engineer to cover all warranty items greater than one year to cover the period after the first warranty year. All warranty bond companies shall meet the bond company requirements stated herein.

The Contractor warrants the Work against defective workmanship and materials additionally as specified below:

- a) Two (2) year materials and labor warranty for fiber optic cable.
- b) Three (3) year materials and labor warranty for LED signal and signal equipment.
- c) Five (5) year materials and labor warranty for luminaires.

The Contractor must involve the manufacturer in the installation and startup as needed to secure any extended manufacturer warranties required.

Nothing in this contract agreement is intended to limit any manufacturer's warranty which provides the Agency with greater warranty rights than set forth in this section or the Contract Documents.

These specifications are not intended to constitute a period of limitations or waiver of any other rights or remedies the Agency may have regarding your other obligations under the Contract Documents or federal or state law.

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Warranty shall include all components. The form of the warranty must be approved by the Engineer.

The warranty documentation must conform to the following requirements:

1. Written warranties, except manufacturer's standard printed warranties, must be on yours and your agents', material suppliers', installers', or manufacturers' own letterhead, addressed to and for the Agency's benefit. Submit warranties in the format described in this section, modified as approved by Engineer to suit the conditions pertaining to the warranty.

2. Obtain warranties, executed in triplicate by responsible Subcontractors and Suppliers, within 10 Working Days after completion of the applicable item of Work. Except for items put into use with the Agency's permission with date mutually agreed upon in writing, ensure the beginning time of warranty is the Project Completion date.

3. Verify that documents are in proper form, contain full information, and are notarized.

4. Verify that warranties are signed by both you and the appropriate agent.

5. Retain warranties until the time specified for submittal to the Engineer.

6. Provide warranties to the Agency with a neatly typed table of contents, identifying each warranty with the number and title of the applicable specification section requiring the warranty and the name of the product or Work item.

7. Separate each warranty with index tab sheets keyed to the table of contents listing. Provide complete information using separate typed sheets as necessary. The information must include a list of Subcontractors and Supplier with name, address, and telephone number of responsible principal.

Any work or equipment repaired or replaced under warranty shall be re-warranted for the same period of time as the original warranty beginning on the day of acceptance of the replaced work or equipment by the Agency.

6-9 LIQUIDATED DAMAGES. Failure of the Contractor to complete the Work within the time allowed will result in damages being sustained by the Agency. Such damages are, and will continue to be, impracticable and extremely difficult to determine. The Contractor shall pay to the Agency, or have withheld from monies due, the sum of **two-thousand five hundred dollars (\$2,500)** for each consecutive calendar day in excess of the time specified for completion of the Work plus additional days approved by the Engineer.

Execution of the Contract shall constitute agreement by the Agency and Contractor that amount specified as liquidated damages per day is the minimum value of the costs and actual damage caused by the failure of the Contractor to complete the Work within the allotted time. Such sum

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is liquidated damages and shall not be construed as a penalty, and may be deducted from payments due the Contractor if such delay occurs.

6-10 USE OF IMPROVEMENT DURING CONSTRUCTION. The Agency reserves the right to take over and utilize all or part of any completed facility or appurtenance. The Contractor will be notified in writing in advance of such action. Such action by the Agency will relieve the Contractor of responsibility for injury or damage to said completed portions of the improvement resulting from use by public traffic or from the action of the elements or from any other cause, except Contractor operations or negligence. The Contractor will not be required to re-clean such portions of the improvement before field acceptance, except for cleanup made necessary by its operations. Nothing in this subsection shall be construed as relieving the Contractor from full responsibility for correcting defective or non-compliant work or materials.

In the event the Agency exercises its right to place into service and utilize all or part of any completed facility or appurtenance, the Agency will assume the responsibility and liability for injury to persons or property resulting from the utilization of the facility or appurtenance so placed into service, except for any such injury to persons or property caused by any willful or negligent act or omission by the Contractor, Subcontractor, their officers, employees, or agents.

The full, unimpeded use of the existing roadway and right-of-way, except in the immediate vicinity of an actual work operation, by the general public, including patrons, residents, their guests, and service people of the properties shall be permitted by the Contractor at all times.

6-11 RIGHT TO AUDIT. The Agency shall have the right to review and audit, and the reasonable right of access to your and all Subcontractor's premises to review and audit your compliance with the provisions of the Contract. This right includes the right to inspect and photocopy same, and to retain copies, outside of your premises, of any and all records with appropriate safeguards, if such retention is deemed necessary by the Agency in its sole discretion. The Agency will keep this information in strictest confidence.

The Contractor must include the Agency's Right to Audit in the Subcontracts and ensure that these specifications are binding upon all Subcontractors.

The Agency's Right includes the right to examine any and all books, records, documents and any other evidence of procedures and practices that the Agency determines is necessary to discover and verify that you are in compliance with all requirements under the Contract.

If there is a claim for additional compensation or for changes in Work, the Agency's Right to Audit includes the right to examine books, records, documents, and any and all other evidence and accounting procedures and practices that the Agency determines is necessary to discover and verify all direct and indirect costs, of whatever nature, which are claimed to have been incurred, anticipated to be incurred, or for which a claim for additional compensation or for changes in the Work have been submitted.

You must maintain complete and accurate records in accordance with generally accepted accounting practices in the construction industry. Make available to the Engineer for review and

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audit all Project related accounting records and documents, and any other financial data. Upon the Engineer's request, you must submit exact duplicates of originals of all requested records to the Engineer.

6-11.1 Compliance Required Before Mediation and Litigation. As a condition precedent to proceeding with mandatory mediation and further litigation under 3-6, "DISPUTE RESOLUTION PROCESS" you must comply with the audit specifications within 60 days of the Engineer's notice to review and audit compliance. See 2-12, "SPECIAL NOTICES."

6-12 CLAIMS FOR DAMAGES. Should the Contractor suffer injury or damage to person or property because of any act or omission of the Agency or the Agency's employees, agents or others for whose acts the Agency is legally liable, such claim shall be made by the Contractor in writing to the Agency within a reasonable time, not to exceed thirty (30) days, after the first observance of such injury or damage. Failure to submit the written claim within in this time requirement shall constitute a waiver of any such claim.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-1 THE CONTRACTOR'S EQUIPMENT AND FACILITIES

7-1.1 General. The Contractor shall furnish and maintain in good condition all equipment and facilities as required for the proper execution and inspection of the Work.

The Contractor shall provide and maintain enclosed toilets for the use of employees engaged in the Work. These accommodations shall be maintained in a neat and sanitary condition, and regularly pumped out.

7-1.2 Temporary Utility Services. The Contractor shall make all arrangements necessary for the provision of temporary utility services necessary for its own use during performance of the Work. The Contractor shall not draw water from any fire hydrant (except to extinguish a fire), without obtaining a permit from the water utility owner and the Agency.

All costs associated with procuring and use of temporary utility services shall be considered incidental to the items of work that they are associated with and there shall be no additional costs to the Agency.

The use of utilities from sources other than utility companies is strictly prohibited without prior written approval from the Engineer and the owner from which the utilities will be drawn. The Contractor shall also provide a written release from the property owner absolving the Agency from any and all responsibility in connection with storage of materials or equipment on said property. The Agency must approve the form and content of any release.

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7-1.3 Contractor's Yard. The Contractor shall be solely responsible for yard site procurement, security, and liability. The yard shall be fenced, lighted and locked. A guard dog shall not be utilized at the yard.

Stockpile of material and equipment storage locations shall be selected by the Contractor subject to approval by the Engineer. When any material or equipment is to be stored outside the highway or street right-of-way or other Agency property, the Contractor shall first obtain a written permit from the property owner on whose property the storage is to be made.

The Contractor shall file with the Engineer said permit or a certified true copy thereof, together with a written release from the property owner absolving the Agency from any and all responsibility in connection with storage of materials or equipment on said property. The Agency must approve the form and content of any release.

The Contractor shall leave all storage areas in a neat clean condition, satisfactory to the Engineer and in accordance with the provisions of storage permits set by owner.

Full compensation for complying with the requirements of this Provision shall be considered as included in the Contract price paid for various items of work and there shall be no additional costs to the Agency.

7-1.4 Crushing and Screening Operations. Unless otherwise specified in the Special Provisions, the establishment and operation of portable screens and crushers will not be allowed on or adjacent to the Work site.

7-2 LABOR

7-2.1 General. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor and services necessary for the proper execution and completion of the Work.

The Contractor shall at all times enforce strict discipline and good order among the Contractor's employees, including, but not limited to, appropriate public behavior and decorum, and shall not employ on the Project any unfit person or anyone not skilled in the task assigned them. The Engineer shall have the final determination as to any employees' qualification to perform their duties. The Engineer may bar any employee of the Contractor from the project for behavior that is inappropriate, unsafe or detrimental to the Project.

Each machine or unit of equipment shall be operated by an experienced operator skilled in handling the particular make of machine or unit of equipment in use, at a speed or rate of production in conformance with the manufacturer's recommendation.

The mention of any specific duty or liability imposed upon the Contractor shall not be construed as a limitation or restriction of any general liability or duty imposed upon the Contractor by this

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Contract. Such references to specific duties and liabilities are made for the purpose of explanation.

7-2.2 Labor Nondiscrimination. Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

NOTICE OF NONDISCRIMINATION PROGRAM

The provisions of California Government Code Section 12990 is incorporated into the Contract Documents and the Contractor shall comply with all of its provisions.

The Contractor may obtain a copy of the Code at <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=12001-13000&file=12990>

In accordance with CA Government Code 12990, Labor Code section 1735 and other applicable provisions of law, the Contractor and its subcontractors shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age, political affiliation, marital status, or handicap on this Work. The Contractor will take affirmative action to ensure that employees are treated during employment or training without regard to their race, color, religion, sex, national origin, age, political affiliation, marital status, or handicap.

7-2.3 - Employment Eligibility; Contractor. By executing this Contract, Contractor verifies that it fully complies with all Applicable Law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time. Such requirements and restrictions include, but are not limited to, examination and retention of documentation confirming the identity and immigration status of each employee of the Contractor. Contractor also verifies that it has not committed a violation of any such law within the five (5) years immediately preceding the date of execution of this Contract, and shall not violate any such law at any time during the term of the Contract. Contractor shall avoid any violation of any such law during the term of this Contract by participating in an electronic verification of work authorization program operated by the United States Department of Homeland Security, by participating in an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, or by some other legally acceptable method. Contractor shall maintain records of each such verification, and shall make them available to the Agency or its representatives for inspection and copy at any time during normal business hours. The Agency shall not be responsible for any costs or expenses related to Contractor's compliance with the requirements provided for in this Section.

7-2.4 Prevailing wages, records and reporting. The provisions of the California Labor Code is incorporated into the Contract Documents and the Contractor shall comply with all their provisions.

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The Contractor shall pay prevailing wages, keep records and provide reporting as required by the State of California Labor Code. Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project are available at the California Department of Industrial Relations' Internet web site at <https://www.dir.ca.gov/oprl/DPreWageDetermination.htm>

Pursuant to Section 1775 of the Labor Code, the Contractor and any Subcontractors, shall, as a penalty to the Agency, forfeit the prescribed amounts per calendar day, or portion thereof, for each worker paid less than the prevailing wage rates.

The Contractor shall provide certified payroll documents to the Engineer for all labor provided on the Project no later than 14 calendar days after the payday they represent. The Agency may withhold progress payments until complete certified payroll documents are submitted.

Contractor shall maintain all payrolls and payroll records during the course of the project and shall preserve them for a period of three (3) years after all project workers have ceased work pursuant to this award. These records shall include the name, address, social security number, classification, hourly rates of wages paid (including bona fide fringe benefits or cash equivalents) daily and weekly hours worked, deductions made, and actual wages paid for each worker working on this project. The Contractor shall submit a copy of all payrolls and payroll records, which include all of the information above, to the Agency once per week. Contractor shall use form WH-347 or an equivalent to submit copies of payrolls and payroll records. The Contractor shall obtain complete and accurate payrolls and payroll records from each subcontractor and submit a copy of all subcontractor payrolls and payroll records to the Agency once per week. Each payroll submitted shall be accompanied by a "Statement of Compliance" signed by the Contractor of subcontractor or their agent that shall certify that (1) the payroll for the payroll period contains the information required to be maintained under California law and that such information is correct and complete, (2) that each laborer or mechanic (including each helper, apprentice, and trainee) employed on the award during the payroll period has been paid the full weekly wages earned, without direct or indirect rebate, and without direct or indirect deductions, and (3) that each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination.

The Contractor shall correct all errors in the certified payroll documents or errors in pay to labor within 5 working days upon determination of an error by the Engineer or DIR. The Agency may withhold 10% of any amount due up to \$10,000 (or any amount allowable under California law) until all such errors are corrected.

The Contractor shall post a copy of the applicable prevailing wage rates at the work site that is readily accessible to all labor personnel at any time during the Project. The Agency may withhold any payments due until the rates are posted and kept in this manner.

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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.

Pursuant to Section 1810 of the Labor Code, 8 hours of labor shall constitute a legal day's work. Pursuant to Section 1813 of the Labor Code, the Contractor and any Subcontractors shall pay to the Agency as a penalty the prescribed amount per calendar day for each worker required or permitted to work more than 8 hours in any 1 calendar day and 40 hours in any 1 calendar week without being compensated in accordance with Section 1815.

As a condition of payment the Contractor and subcontractors shall comply with all other requirements of the California Labor Code.

The Contractor shall defend, indemnify and hold the Agency, its elected officials, officers, employees and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with all labor related laws.

7-2.5 – Employment of Apprentices. The Contractor's is directed to the provisions of sections 1777.5, 1777.6, and 1777.7 of the Labor Code concerning employment of apprentices by the Contractor or any subcontractor. The Contractor shall obtain a certificate of apprenticeship before employing any apprentice pursuant to sections 1777.5, 1777.6, and 1777.7 of the Labor Code. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, the Administrator of Apprenticeships, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

7-2.10 Payment. All costs associated with compliance with section 7-2 LABOR shall be borne by the Contractor and there shall be no additional costs to the Agency. Contractor's compliance with all parts of section 7-2 LABOR and its incorporated or referenced parts is a condition precedent to any payment due.

7-3 LIABILITY INSURANCE

7-3.1 General. The Contractor shall obtain, and at all times during performance of the Work of Contract, maintain all of the insurance described herein. Surety companies and insurance

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companies shall familiarize themselves with all of the conditions and provisions of the Contract Documents, and they waive the right of special notification of any change or modification of the Contract Documents or of decreased or increased work or of the cancellation of the Contract, or of any other acts by the Agency or any other additionally insured, under the terms of the Contract. Notwithstanding the provisions of any other contract or agreement, the failure of any surety company or insurance company to receive notification of any of the aforesaid changes shall in no way relieve the surety company or insurance company of its obligations under the Contract.

7-3.2 Employer's Liability Insurance. Contractor shall provide during the life of this Contract, Employer's Liability Insurance, including Occupational Disease, in the amount of, at least, one million dollars (\$1,000,000.00) per person per accident. Contractor shall provide Agency with a certificate of Employer's Liability Insurance. Such insurance shall comply with the provisions of the Contract Documents. The policy shall be endorsed, if applicable, to provide a Borrowed Servant/Alternate Employer Endorsement and contain a Waiver of Subrogation in favor of the Agency.

7-3.3 Commercial General Liability Insurance. Contractor shall procure and maintain during the life of this Contract and for such other period as may be required herein, at its sole expense, "occurrence" form Commercial General Liability insurance coverage, at least as broad as the most current ISO CAL Form 00 01 including but not limited to, premises liability, contractual liability, products/completed operations, personal and advertising injury, independent contractors, Completed Operations/Products (for ten [10] years after final completion) and Blanket Contractual, which may arise from or out of Contractor's operations, use, and management of the Site, or the performance of its obligations hereunder. The policy shall not contain any exclusion contrary to this Contract including but not limited to endorsements or provisions limiting coverage for (1) contractual liability (including but not limited to ISO CG 24 26 or 21 29); or (2) cross-liability for claims or suits against one insured against another. Policy limits shall not be less than \$2,000,000 per occurrence for bodily injury, personal injury and property damage and general aggregate limit of not less than Four Million Dollars (\$4,000,000) (or current limit, if greater) providing at least all of the following minimum coverage (with deductibles or self-insured retentions not to exceed \$25,000). If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit. Defense costs shall be paid in addition to the limits with the Agency and others covered having the right to select legal counsel.

1. The limits set forth herein shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability.
2. The limits set forth herein shall not be construed to relieve the Contractor from liability in excess of such coverage, nor shall it limit Contractor's indemnification obligations to the Agency and others, and shall not preclude the Agency from taking such other actions available to the Agency under other provisions of the Contract Documents or law.

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3. Contractor shall make certain that any and all subcontractors hired by Contractor are insured in accordance with this Contract. If any subcontractor's coverage does not comply with the foregoing provisions, Contractor shall indemnify and hold the Agency, its employees, elected officials, private consultants hired by the Agency or volunteering to work on the project and volunteers harmless from any damage, loss, cost, or expense, including attorneys' fees, incurred by the aforementioned as a result thereof.
4. All general liability policies provided pursuant to the provisions of this Article shall comply with all the provisions of the Contract Documents.
5. All general liability policies shall be written to apply to all bodily injury, including death, property damage, personal injury, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, under-ground excavation, removal of lateral support, and other covered loss, however occasioned, occurring during the policy term, and shall specifically insure the performance by Contractor of that part of the indemnification contained in these General Conditions relating to liability for injury to or death of persons and damage to property. If the coverage contains one or more aggregate limits, a minimum of 50% of any such aggregate limit must remain available at all times; if over 50% of any aggregate limit has been paid or reserved, the Agency may require additional coverage to be purchased by Contractor to restore the required limits. Contractor may combine primary, umbrella, and as broad as possible excess liability coverage to achieve the total limits indicated above. Any umbrella or excess liability policy shall include the additional insured endorsement described in the Contract Documents.

7-3.4 Automobile Liability Insurance. Contractor shall take out and maintain at all times during the term of this Contract a comprehensive "occurrence" form Automobile Liability Insurance at least as broad as ISO CA 00 01 (Any Auto) in the amount of, at least, two million dollars (\$2,000,000) (or current limit carried, if higher) combined single limit for bodily injury and property damage, providing at least all of the following coverage (with deductibles or self-insured retentions not to exceed \$25,000). Such insurance shall provide coverage for bodily injury and property damage including coverage for owned, non-owned and hired vehicles, in a form and with insurance companies acceptable to the Agency. Such insurance shall comply with the provisions of the Contract Documents.

7-3.6 Form and Proof of Carriage of Insurance. Any insurance carrier providing insurance coverage required by the Contract Documents shall be admitted to and authorized to do business in the State of California unless waived, in writing, by the Agency's Risk Manager. Carrier(s) shall have an A.M. Best rating of not less than an A:VII. Insurance deductibles or self-insured retentions must be declared by the Contractor, and such deductibles and retentions shall have the prior written consent from the Agency. At the election of the Agency the Contractor shall either 1) reduce or eliminate such deductibles or self-insured retentions, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses. If umbrella or excess liability coverage is used to meet any required

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limit(s) specified herein, the Contractor shall provide a "follow form" endorsement satisfactory to the Agency indicating that such coverage is subject to the same terms and conditions as the underlying liability policy.

Contractor shall cause its insurance carrier(s) to furnish the Agency with either 1) a properly executed original Certificates(s) of Insurance and certified original copies of Endorsements effecting coverage as required herein, or 2) if requested to do so in writing by the Agency's Risk Manager, provide original certified copies of policies including all Endorsements and all attachments thereto, showing such insurance is in full force and effect.

The Agency, its elected officials, officers, employees, agents, representatives, consultants, contract employees and volunteers shall be named as Additional Insureds on Contractor's All Risk policy and on Contractor's and its subcontractors' policies of Commercial General Liability and Automobile Liability insurance using, for Contractor's policy/ies of Commercial General Liability insurance, ISO CG forms 20 10 and 20 37 (or endorsements providing the exact same coverage), and, for subcontractors' policies of Commercial General Liability insurance, ISO CG form 20 38 (or endorsements providing the exact same coverage).

All of the following endorsements are required to be made a part of each of the above described policies:

1. "City of National City and its elected officials, officers, employees, agents, representatives, consultants, contract employees and volunteers are hereby added as additional insureds but only as respects work done by, for, or on behalf of the named insureds."
2. "This policy shall be considered primary insurance as respects any other valid and collectible insurance the City of National City and all other additionally insured may possess, including self-insured retention, the City of National City and all other additionally insured may possess, and any other insurance the City of National City and all other additionally insured do possess shall be considered excess insurance only."
3. "This insurance shall act for each insured, and additional insured, as though a separate policy had been written for each. This, however, will not act to increase the limit of liability of the insuring company."
4. "All and each additionally insured shall have the right to select their own defense counsel."
5. "Thirty (30) days prior written notice of cancellation shall be given to the Agency in the event of cancellation and/or reduction in coverage of any nature. Such notice shall be sent to:

Roberto Yano, Acting City Engineer
City of National City
1243 National City Blvd.
National City, CA 91950

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6. "All policies of insurance shall contain a provision under which the insurance carrier waives its rights of subrogation with respect to the Agency and the other parties names as additional insures in Section 7-4.2, paragraph (i)."

Certificates of Insurance on AIA Document G705 (1978) or other Agency-approved form, shall be submitted to the Engineer prior to commencement of the Work. The Contractor shall provide one copy of each required Certificate of Insurance for each copy of the Agreement. The Contractor shall furnish copies of separate certificates and endorsements for each Subcontractor. The Contractor agrees to furnish promptly to the Agency originals of any endorsements issued after execution of the Contract amending the Contractor's coverage or limits. The Contractor further agrees that, upon receipt of any notice of cancellation or alteration, the Contractor shall procure, within five (5) days, other policies of insurance similar in all respects to the policy or policies about to be canceled or altered. If the Contractor fails to provide acceptable policies of insurance, the Agency may obtain such insurance at the cost and expense of Contractor.

Notwithstanding the minimum limits set forth in this Contract for any type of insurance coverage, all available insurance proceeds in excess of the specified minimum limits of coverage shall be available to the parties required to be named as Additional Insureds hereunder.

Contractor and its insurance carriers shall provide a Waiver of Subrogation in favor of those parties.

The Certificate(s) and policies of insurance shall contain or shall be endorsed to contain the covenant of the insurance carrier(s) that it shall provide no less than thirty (30) days written notice be given to the Agency prior to any material modification or cancellation of such insurance. In the event of a material modification or cancellation of coverage, the Agency may terminate the Contract or stop the Work in accordance with the Contract Documents, unless the Agency receives, prior to such effective date, another properly executed original Certificate of Insurance and original copies of endorsements or certified original policies, including all endorsements and attachments thereto evidencing coverage's set forth herein and the insurance required herein is in full force and effect.

Contractor shall not take possession, or use the Site, or commence operations under this Contract until the Agency has been furnished original Certificate(s) of Insurance and certified original copies of endorsements or policies of insurance including all endorsements and any and all other attachments as required in this section. The original endorsements for each policy and the Certificate of Insurance shall be signed by an individual authorized by the insurance carrier to do so on its behalf.

Certificate(s) of Insurance, policies and endorsements shall so covenant and shall be construed as primary, and the Agency's insurance and/or deductibles and/or self-insured retentions or self-insured programs shall not be construed as contributory. The Contractor shall provide

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endorsement(s) to this effect, using ISO CG form 20 01 or endorsement(s) providing the exact same coverage, at the Agency's request.

The Agency reserves the right to adjust the monetary limits of insurance coverage during the term of this Contract including any extension thereof if in the Agency's reasonable judgment, the amount or type of insurance carried by the Contractor becomes inadequate.

Contractor shall require all tiers of sub-contractors working under this Contract to provide the insurance required under this Article 29 unless otherwise agreed to in writing by Agency.

7-3.7 Investigation and Cooperation. Contractor agrees to assist in every manner possible in the reporting and investigation of any accident and, upon request, to cooperate with all interested insurance carriers in the handling of any claim by securing and giving evidence and obtaining the attendance of witnesses as required for the resolution of any claim or lawsuit.

7-3.8 Limitations. Nothing contained in these insurance requirements is to be construed as limiting the type, quality or quantity of insurance that the Contractor should maintain, or the extent of the Contractor's responsibility or liability for payment of damages resulting for the Contractor's operations under the Contract. The carrying of the insurance specified herein shall not be construed to be a limitation of liability on the part of the Contractor or as a matter of law.

7-3.9 Payment. All costs for compliance with section 7-3 LIABILITY INSURANCE shall be borne by the Contractor and there shall be no additional costs to the Agency.

7-4 WORKERS COMPENSATION INSURANCE

7-4.1 General. The Contractor shall obtain, and at all times during performance of the Work or Contract maintain, workers' compensation insurance for all of the employees engaged in Work under this Contract, on or at the Site, and, in case any of sublet Work, the Contractor shall require the subcontractor similarly to provide workers' compensation insurance for all the latter's employees as prescribed by State law. Any class of employee or employees not covered by a subcontractor's insurance shall be covered by the Contractor's insurance. In case any class of employees engaged in work under this Contract, on or at the Site, is not protected under the Workers' Compensation Statutes, the Contractor shall provide or shall cause a subcontractor to provide, adequate insurance coverage for the protection of such employees not otherwise protected. The Contractor is required to secure payment of compensation to his employees in accordance with the provisions of section 3700 of the Labor Code. The Contractor shall file with the Agency certificates of his insurance protecting workers. Company or companies providing insurance coverage shall be acceptable to the Agency, if in the form and coverage as set forth in the Section 7-3. Endorsement No. 5 listed above is the only endorsement required to be made a part of the Workers Compensation and Employers' Liability policy.

7-4.2 Payment. All costs for compliance with section 7-4 WORKERS COMPENSATION INSURANCE shall be borne by the Contractor and there shall be no additional costs to the Agency.

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7-5 PERMITS. The Contractor shall obtain and pay for all costs incurred for permits necessitated by its operations such as, but not limited to, those permits required for night work, overload, blasting, and demolition.

7-5.1 Licenses. The contractor and subcontractors shall obtain and pay costs incurred for all licenses as required by his operations, including municipal business license(s).

7-5.2 Agency Permits. The Contractor must obtain and pay for all business taxes, permits, and fees required for constructing the Project and licenses and inspections necessary for the proper execution and completion of the Work unless specified otherwise in the Contract Documents.

The contractor shall obtain and pay costs incurred for all Permits from adjoining agencies such as but not limited to Caltrans for encroachment or traffic control permits, City of Chula Vista for encroachment into city right of way for traffic control, MTS for work adjacent to bus stops necessitated by his operations, Cal-OSHA, etc., (if required).

Prior to start of work within the State of California's right-of-way or work affecting the State of California facilities, obtain a duplicate State of California Department of Transportation (Caltrans) Encroachment Permit. All work must comply with the Caltrans issued permit.

The Environmental Quality Act of 1970 (Chapter 1433, Stats. 1970), as amended, may be applicable to permits, licenses, and other authorizations, which the Contractor must obtain from agencies in connection with performing the Work of the Contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses, and other authorizations and they shall be obtained in sufficient time to prevent delays to the Work.

Agency provided permits are included in the appendices.

7-5.3 Railroads. The Contractor, at the Contractor's sole cost and expense, is required to comply with the terms of, and obtain, the Right of Entry Permit from any rail entity for this project. This includes but is not limited to permit fees, insurance and bonding requirements, deposits, and all other terms per the Right of Entry Permit.

7-5.4 Payment. Except as specified herein or provided for elsewhere in these Special Provisions as being included in specific contract items of work, compliance with the provisions of Section 7-5, shall be considered as included in the various contract items of work to which such regulations are applicable and no additional compensation shall be made therefore. Further, the enforcement of any requirements of the permits mentioned above during the performance of the Work shall not be the basis for any additional compensation.

7-6 THE CONTRACTOR'S REPRESENTATIVE. Before starting the Work, the Contractor shall designate in writing a representative who shall have complete authority to act on behalf of and obligate the Contractor. An alternative representative may be designated as well. The

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representative or alternate shall be present at the Work site whenever work is in progress or whenever actions of the elements necessitate its presence to take measures necessary to protect the Work, persons, or property. Any order or communication given to this representative shall be deemed delivered to the Contractor. A joint venture shall designate only one representative and alternate. In the absence of the Contractor or its representative, instructions or directions may be given by the Engineer to the superintendent or person in charge of the specific work to which the order applies. Such order shall be complied with promptly and referred to the Contractor or its representative.

In order to communicate with the Agency, the Contractor's representative, superintendent, or person in charge of specific work shall be able to speak, read, and write the English language.

The Engineer may deduct the value of superintendence (value shall be determined by the reasonable cost of provide and a superintendent, transportation and communication) from amounts due to the Contractor for any partial or complete failure to provide superintendence to the Project.

7-6.1 Project Meetings. Your representatives e.g., field supervisor, superintendent, and project manager, must attend weekly and other scheduled construction meetings as required by the Engineer. If any of your staff cannot attend, you must notify the Engineer a minimum of 24 hours in advance, prior to the start of the scheduled meeting. If you do not provide the required notification, you must pay for the costs of the Agency's staff, Consultants, or both that attend. You will be charged a minimum of 2 hours of the Engineer's time plus the time of the Agency's other employees or representatives that attend the meeting at full cost recover rates.

7-7 COOPERATION AND COLLATERAL WORK. The Engineer may award contract extensions for delays caused by utilities or third parties at the sole discretion of the Engineer. No additional compensation will be made for such delays. If the Contractor receives damages form a third party for delays to the project by third parties the Agency will not grant a time extension to the project.

7-8 WORK SITE MAINTENANCE

7-8.1 General. Throughout all phases of construction, including suspension of the Work, and until acceptance of the Project by the Engineer the Contractor shall keep the Work site clean and free from rubbish and debris. Rubbish and debris collected on the Work site shall only be stored in roll-off, enclosed containers prior to disposal. Stockpiles of such will not be allowed.

When required by the Special Provisions, the Contractor shall provide a self-loading motorized street sweeper equipped with a functional water spray system. The sweeper shall clean all paved areas within and adjacent to the work site and all paved haul routes at least once each working day.

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The Contractor shall ensure there is no spillage along haul routes. Any such spillage shall be removed immediately and the area cleaned. The Contractor's haul routes shall also be kept free from dirt, rubbish, and unnecessary obstruction resulting from the Contractor's operations.

Disposal of all rubbish and surplus materials shall be off the Project Site, at the Contractor's own expense, and in accordance with all federal, state and local codes, regulations and ordinances governing locations and methods of disposal.

Should the Contractor fail to keep the Work site free from rubbish and debris, the Engineer may suspend the Work until the condition is corrected, or cause the work to be done by others and deduct all costs for such work from amounts due to the Contractor. No additional compensation or time will be allowed as a result of such suspension.

After completion of all other work on the Project and before making application for final acceptance of the Work, the Contractor shall clean the Work Site of the Contractor's operations, including all areas under the control of the Agency that have been used by the Contractor in connection with the Work on the Project, removing all debris, surplus material, equipment and all temporary construction for facilities of whatever nature, unless otherwise approved by the Agency. Final acceptance of the Work by the Agency will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final clean-up on the Work Site.

All costs for general worksite maintenance shall be included in the various items of work costs and there shall be no additional costs to the Agency.

7-8.2 Air Pollution Control. The Contractor shall not discharge smoke, dust, equipment exhaust, or any other air contaminants into the atmosphere in such quantity as will violate any Federal, State, or local regulations. The Contractor shall also abate dust nuisance by cleaning, sweeping and spraying with water, or other means as necessary.

The Contractor shall use low sulphur fuel (0.5% by weight) for construction equipment, shall phase and schedule construction activities to avoid high ozone days, and shall maintain equipment engines in proper tune.

The Contractor shall not, in connection with the Work, discharge any smoke, dust or other contaminants into the atmosphere or discharge any fluids or materials into any lake, river, stream, or channel as will violate the requirements or regulations of the Corps of Engineers, Department of Fish & Game or any other legally constituted authority. The Contractor shall control accumulation of waste materials and rubbish and dispose of waste materials and rubbish off-site on (at least) weekly intervals. Burning of materials is not permitted.

7-8.3 Noise Control. Noise generated from the Contractor's operations shall be controlled as specified in the Special Provisions. The contractor shall not make any noise at or near the project before or after the allowed and approved work times.

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7-8.4 Storage of Equipment and Materials

7-8.4.1 General. Materials and equipment shall be removed from the Work site as soon as they are no longer necessary. Before inspection by the Engineer for acceptance, the Work site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance.

Excess excavated material shall be removed from the Work site immediately unless otherwise specified in the Special Provisions.

Forms and form lumber shall be removed from the Work site as soon as practicable after stripping.

7-8.4.2 Storage in Public Streets. Construction materials and equipment shall not be stored in streets, roads, or highways for more than 5 days after unloading unless otherwise specified in the Special Provisions or approved by the Engineer. All materials or equipment not installed or used in construction within 5 days after unloading shall be stored at a location approved by the Engineer.

Excavated material, except that which is to be used as backfill in the adjacent trench, shall not be stored in public streets unless otherwise specified in the Special Provisions or approved by the Engineer. Immediately after placing backfill, all excess excavated material shall be removed.

7-8.5 Sanitary Sewers.

7-8.5.1 General. The flow of sewage shall not be interrupted. Should the Contractor disrupt the operation of existing sanitary sewer facilities, or should disruption be necessary for performance of the Work, the Contractor shall bypass the sewage flow around the Work. Sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system. Sewage shall not be permitted to flow in trenches nor be covered by backfill.

Whenever sewage bypass and pumping is required by the Plans or Specifications, or the Contractor so elects to perform, the Contractor shall submit a working drawing detailing its proposed plan of sewage bypass and pumping.

7-8.5.2 Sewage Bypass and Pumping Plan. The plan shall indicate the locations and capacities of all pumps, sumps, suction and discharge lines. Equipment and piping shall be sized to handle the peak flow of, the section of sewer line to be bypassed and pumped. Bypass piping, when crossing areas subject to traffic loads, shall be constructed in trenches with adequate cover and otherwise protected from damage due to traffic. Lay-flat hose or aluminum piping with an adequate casing and/or traffic plates may be allowed if so approved by the Engineer. Bypass pump suction and discharge lines that extend into manholes shall be rigid hose or hard pipe. Lay flat hose will not be allowed to extend into manholes. The Contractor shall provide a backup bypass pumping system in case of malfunction. The backup bypass system shall provide 100

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percent standby capability, and be in place and ready for immediate use. Each standby pump shall be a complete unit with its own suction and discharge piping. In addition to the backup system, the Contractor shall furnish and operate vacuum trucks when required by the Plans or Special Provisions.

7-8.5.3 Spill Prevention and Emergency Response Plan. The Contractor shall prepare and submit a spill prevention and emergency response plan. The plan shall address implementation of measures to prevent sewage spills, procedures for spill control and containment, notifications, emergency response, cleanup, and spill and damage reporting.

The plan shall account for all storm drain systems and water courses within the vicinity of the Work which could be affected by a sewage spill. Catch basins that could receive spilled sewage shall be identified. Unless otherwise specified in the Special Provisions, these catch basins shall be sealed prior to operating the bypass and pumping system. The Contractor shall remove all material used to seal the catch basins when the bypass and pumping system operations are complete.

The Contractor shall be fully responsible for containing any sewage spillage, preventing any sewage from reaching a watercourse, recovery and legal disposal of any spilled sewage, any fines or penalties associated with the sewage spill imposed upon by the Agency and/or the Contractor by jurisdictional regulatory agencies, and any other expenses or liabilities related to the sewage spill.

7-8.5.4 Payment. All costs associated with the development and implementation of the sewer bypass system and Spill Prevention and Emergency Response Plan shall be paid in accordance with the line item "Sewer Bypass", if there is no line item then all costs shall be included in the various relevant line items and there shall be no additional costs to the Agency.

7-8.6 Water Pollution Control. The Project requires storm water pollution control measures.

7-8.6.1 General. The Contractor shall conform to all applicable local, state and Federal regulations and laws pertaining to water pollution control. The Contractor shall conduct and schedule its operations, and follow and implement best management practices in such a manner as to prevent water pollution. The Contractor shall also conform to the following requirements:

- a) Sediments shall not be discharged to a storm drain system or receiving waters.
- b) Sediments generated on the Work site shall be contained on the Work site using appropriate BMPs.
- c) No construction-related materials, waste, spill, or residue shall be discharged from the Work site to streets, drainage facilities, receiving waters, or adjacent property by wind or runoff.
- d) Non-storm water runoff from equipment, vehicle washing, or any other activity shall be contained within the Work site using appropriate BMPs.
- e) Erosion shall be prevented. Erosion susceptible slopes shall be covered, planted or otherwise protected in a way that prevents discharge from the Work site.

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The Contractor must comply with the requirements of the CGP or Municipal Permit as applicable for any construction or demolition activity that results in a land disturbance.

The permittee shall follow the specifications provided in the Caltrans TR-0400 (Rev 09/2012) Storm Water Special Provisions for Minimal or No Impact for water pollution control, mitigation, and prevention.

7-8.6.2 Best Management Practices (BMPs). The Contractor shall implement and maintain such BMPs as are relevant to the Work, and as are specifically required by the Plans or Special Provisions.

The Contractor shall be responsible throughout the duration of the Contract for installing, constructing, inspecting, maintaining, removing and disposing of BMPs for wind erosion control, tracking control, erosion and sediment control, non-storm water control, and waste management and materials pollution control. Unless otherwise directed by the Engineer, the Contractor shall be responsible for BMP implementation and maintenance throughout any temporary suspension of the Work.

7-8.6.3 Storm Water Pollution Prevention Plan (SWPPP). The Contractor shall prepare (unless already provided), submit and implement all aspects of a SWPPP. The SWPPP shall conform to the requirements specified in the Contract Documents and those of the jurisdictional regulatory agency. The Notice of Intent will be filed by the Agency.

7-8.6.4 Payment. Payment for implementation storm water pollution prevention BMPs and any SWPPP costs (if required) shall be paid for as a lump sum item for "Water Pollution Control". If there is no item for water pollution control the cost for all such work, permits and submittals shall be included in various line items and there shall be no additional costs to the Agency.

7-8.7 Dewatering. Dewatering shall be performed by the Contractor when specifically required by the Plans or Specifications, and as necessary for construction of the Work. Dewatering shall be performed in conformance with all applicable local, state and Federal laws and permits issued by jurisdictional regulatory agencies. The Contractor shall obtain and pay for all permits necessary for treatment and disposal of accumulated. Accumulated water shall be treated prior to disposal if so specified in the Contract Documents or required by a permit. The Contractor shall submit a working drawing and related supporting information detailing its proposed plan and methodology of dewatering and treatment and disposal of accumulated water.

The plan shall identify the location, type and size of dewatering devices and related equipment, the size and type of materials composing the collection system, the size and type of equipment to be used to retain and, if required, treat accumulated water, and the proposed disposal locations. If the proposed disposal location is a sanitary sewer, the Contractor shall submit to the Engineer written evidence of permission from the owner. If the proposed disposal location is a storm drain system or receiving body of water, the Contractor shall submit written evidence of

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permission from the owner of the storm drain system and, if not obtained by the Agency, original signed permits from jurisdictional regulatory agencies or written evidence that such permits are not required.

Payment for all costs involved for dewatering (if required) shall be paid for as a lump sum item for "Dewatering". If there is no item for dewatering the cost for all such work, permits and submittals shall be included in the relevant line items or work and there shall be no additional costs to the Agency.

7-8.8 Environmental protection. The Contractor shall comply with all applicable standards, orders, or requirements of the Environmental Protection Agency regulations (40 CFR, Part 15).

7-8.9 Flood disaster protection act of 1973. The Contractor shall comply with all applicable standards, orders, or requirements of the Flood Disaster Protection Act of 1973 (42 USC 4001 et seq, as amended).

7-8.10 Illness and Injury Prevention Program. The Contractor shall comply with all the mandates of Senate Bill 198 and specifically shall have a written Injury Prevention Program on file with the Agency in accordance with all applicable standards, orders, or requirements of California Labor Code, Section 6401.7. This Program shall be on file at time of Award of Contract.

7-8.11 Graffiti Control. The Contractor shall maintain all site improvements, including any temporary facilities, equipment or other materials in a graffiti free condition throughout the construction period, until acceptance of the project by the Agency. The Contractor shall remove graffiti encountered on the job site within twenty-four (24) hours. The Contractor may cover graffiti only in a manner approved by the Engineer if allowed.

7-8.12 Noise Abatement and Control. The Contractor shall comply with the provisions of the state and local Noise Abatement and Control regulations. In the event of conflict, the most stringent requirement shall apply. If the Contractor chooses to conduct work activities during times when a Noise Permit is required, the Contractor shall apply for, obtain, and pay for the Noise Permit at no additional cost to Agency.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

The Contractor shall coordinate their activities in such a way that minimizes the disturbance with the any adjacent or nearby schools, businesses, hospitals and residences. The Contractor shall attend any coordination meetings with any schools, businesses, hospitals, HOA's or community groups.

7-8.13 Project Appearance. The Contractor shall maintain a neat appearance to the work. In any area visible to the public, the following shall apply:

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- a. Broken concrete, asphalt and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. Stockpiling will not be allowed without prior written approval of the Engineer.
- b. The Contractor shall furnish trash bins for all debris from construction. All debris shall be placed in trash bins daily. Forms and false-work that are to be re-used shall be stacked neatly concurrently with their removal. Forms and false-work that are not to be re-used shall be disposed of concurrently with their removal.

7-8.14 Vermin Control. At the time of acceptance, structures entirely constructed under the Contract shall be free of rodents, insects, vermin and pests. Necessary extermination work shall be arranged and paid for by the Contractor as part of the Work within the Contract time, and shall be performed by a licensed exterminator in accordance with requirements of governing authorities. The Contractor shall be liable for injury to persons or property and responsible for the elimination of offensive odors resulting from extermination odors.

7-8.15 Payment. Payment for the Work Site Maintenance is included in the relevant bid items unless separate a bid item has been provided. If a separate pay line item is made for one or more of the Work Site Maintenance items all of the costs associated with the remainder of the Work Site Maintenance items shall be included in the relevant line items of work and there shall be no additional costs to the Agency.

7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS. The Contractor shall be responsible for the protection of public and private property that is not a part of the Work and shall exercise due caution to avoid damage to such property.

The Contractor shall repair or replace all existing improvements within the right-of-way that are not designated for removal (e.g., curbs, sidewalks, driveways, fences, walls, signs, utility installations, pavement, structures, etc.) which are damaged or removed as a result of the Contractor's operations. When a portion of a sprinkler system within the right-of-way must be removed, the remaining lines shall be capped. Repairs and replacements shall be equal or better to existing improvements and shall match them in kind, manufacturer, model, finish and dimension.

The Contractor shall give reasonable notice to occupants or owners of adjacent property to permit them to salvage or relocate plants, trees, fences, sprinklers, and other improvements, within the right-of-way, which are designated for removal and would be destroyed because of the Work.

All costs to the Contractor for protecting, removing, and restoring existing improvements shall be included in the Bid.

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Contractor shall replace/repair any property or private improvements, which are damaged or removed as a result of its operations to current standards and to the satisfaction of the Agency Engineer in an as good or better condition.

Contractor will take measures to minimize inconvenience to the Agency, including but not limited to:

- a. Advance notification of the impending work and the estimated duration of the work.
- b. Care in access to and from the building by the Contractor's equipment, materials and/or personnel.
- c. Private property and improvements must be repair, restored and/or replaced within 7 days of the completion of the adjacent work.
- d. The Agency reserves the right to repair damages to The Agency's facilities caused by the Contractor's operations. All costs for such repair shall be paid for by the Contractor and all such costs can be deducted from any amounts due to the Contractor.
- e. The Contractor is responsible for coordinating with property owners for access to work on their private property.
- f. Loop detectors must be replaced within 3 Working Days of completion of underground work.
- g. Maintenance of street and traffic signal systems that are damaged, temporarily removed or relocated shall be done in conformance with 307-2.
- h. Replace damaged lawns with sod that matches the type of the existing lawn. Install and maintain the sod per manufacturer's recommendations for no less than 30 days.
- i. Trees and shrubbery that are not to be removed shall be protected from damage or injury. If damaged or removed due to Contractor's operations, they shall be restored or replaced in the original condition, size and location. If they are not able to be replaced in size and kind the Contractor shall pay the owner the value of the damaged item, or the difference in retail value the between the original item and the replacement not including removal, replacement, profit and overhead.

For work under this section that is deemed an emergency by the Engineer that affects the safety of persons or property, the Contractor must act immediately to prevent threatened damage, injury or loss.

The cost of protecting, removing and restoring of items necessary to complete this work shall be included in the line item for "Protection and Restoration of Existing Improvements". If there is

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no bid item the Contractor shall include all costs of Protection and Restoration of Existing Improvements in the relevant line items of work and there shall be no additional cost to the Agency.

7-9.1 Video & Photo Documentation of Existing Conditions. The Contractor must digitally record video and take photographs of the project site and adjacent improvements in a manner and quality that clearly depicts the existing condition of the project site and adjacent improvements immediately prior to the start of work (minimum 1080p video and 4MP photo). The Contractor shall submit the video and photos in digital format and jpg on a memory stick before the commencement of work.

7-9.1.1 Payment. Payment for video and photo documentation is included in the Bid item for "Video & Photo Documentation." If there is no Bid item the Contractor shall include all costs for Video and Photo Documentation in the relevant line items of work and there shall be no additional costs to the Agency.

7-9.2 Placements and Removal of Markouts. Markouts refer to the temporary marking or painting of the ground, pavement, or sidewalk by the facility or utility owner or its representative for the Contractor's convenience. Do not place Markouts in the public right-of-way more than 30 days prior to the commencement of work. Remove Markouts from all surfaces in the public right-of-way, including decorative surfaces, before the completion of the Work.

7-10 PUBLIC CONVENIENCE AND SAFETY

7-10.1.1 General. The Contractor is directed to the appendices for the City of National City Standard Traffic Control Notes as the primary control and requirements for traffic and pedestrian control. The following requirements control where they do not conflict with the Standard Traffic Control notes in the appendices.

The Contractor's operations shall cause no unnecessary inconvenience to the public or businesses in the vicinity of the Work. The Contractor shall have no greater length or quantity of Work under construction than can be properly prosecuted with a minimum of inconvenience to the public and other contractors engaged in adjacent or related work.

The Contractor shall provide continuous and unobstructed access to the adjacent properties unless otherwise specified in the Special Provisions or approved by Engineer. Work requiring traffic lane closures shall only be performed between the hours specified in the Special Provisions or shown on the traffic control plan. Traffic shall be permitted to pass through the Work site, unless otherwise specified in the Special Provisions or shown on the traffic control plan.

The contractor shall provide and maintain a twelve-foot wide lane for through traffic at all times.

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Upon completion of each day's work, the contractor shall be responsible for leaving the work area free of hazards and shall provide all necessary temporary signs, warning devices and barricades. Access is to be provided for all adjacent residences and businesses at all times.

Construction activity shall be limited to the hours of 7:00 a.m. through 5:00 p.m., Monday through Friday, unless otherwise specifically approved by the Engineer.

Construction activity may be restricted for specific time periods to minimize impacts to peak hour traffic, school drop-off/pick-up, special events, etc., at the direction of the Engineer.

Full street closures require prior approval by the Agency. Therefore, the contractor shall submit all requests for full street closures, including a separate detour plan, to the Engineer a minimum of 30 days in advance of construction. If approved, the contractor shall notify both the Police and Fire Departments a minimum of 1 week in advance of the closure, and immediately after re-opening of the street.

Lane and ramp closures within Caltrans right of way must comply with Section 12-4 "Maintaining Traffic" of the 2018 Caltrans Standard Plans and the Contractor's encroachment permit. Contractor should be aware that the approved lane and/or ramp closures may be restricted to night time hours (9pm-5am).

Contractor shall comply with Caltrans Lane Closure System (LCS) in Section 12-4.02C(2) "Lane Closure System" of the 2018 Caltrans Standard Specifications.

Contractor shall notify residents, business owners/occupants and school officials a minimum of 1 week in advance of construction adjacent to their properties.

Contractor shall notify MTS a minimum of 1 week in advance of construction affecting bus stops.

Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to adjacent property owners.

7-10.1.1.1 Vehicular Access. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access. If backfill has been completed to the extent that safe access may be provided and the street is opened to local traffic, the Contractor shall immediately clear the street and driveways and provide and maintain access.

Access to adjacent property owners shall be maintained at all times.
Emergency vehicle access shall be maintained at all times.

All traffic control devices shall be placed as to not obstruct visibility at driveways, and shall be removed from view or covered when not in use.

Contractor shall maintain a minimum turning radius of 25' at corners of work zones.

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The designated driving lanes shall be kept in a smooth and drivable condition at all times.

All travel lanes shall be a minimum of 12 feet wide, 14 feet if adjacent to bike lanes, unless otherwise specifically approved by the Engineer.

All travel lanes shall have a minimum of 5 feet of clearance from open trenches and a minimum of 2 feet of clearance from vertical obstructions. Open trenches with less than 5 feet of clearance shall be protected by K-Rail barriers and temporary crash cushions per the latest standard plans and specifications, and to the satisfaction of the Engineer.

Contractor shall post "Uneven Lanes" (W8-11) signs for pavement surface disruptions of ½ inch or greater. Pavement disruptions of 1 inch or greater shall have beveled edges of 4:1 (horizontal to vertical).

Flashing arrow boards shall be used for all full lane closures or as otherwise required by the Engineer. Flash rates and patterns shall conform to the latest standard specifications. Silent type arrow boards shall be used in residential areas.

For extended lane closures the contractor shall place "LANE CLOSED" (C30 (CA)) signs at 300' intervals in urbanized areas (or one sign per City block) and at 500' intervals for areas with limited access.

For extended work areas in commercial districts the contractor shall place "BUSINESSES OPEN DURING CONSTRUCTION" signs (Black on White background) at intervals of 150' (or two per City block). More frequent sign placement may be required at the direction of the Engineer.

If parking is allowed in the advance warning area, advance warning signs shall be mounted on high level devices.

Contractor shall post tow-away/no parking signs seventy-two (72) hours in advance, with the day of the week, date and work hours noted, and shall bag parking meters (where applicable).

7-10.1.1.2 Pedestrian Access. Pedestrian access shall be maintained unless otherwise approved by the Engineer.

Contractor shall comply with the latest requirements of the American Disability Act (ADA) Accessibility Guidelines and the California Accessibility Guidelines to maintain safe pedestrian access, including access for all persons with disability, through work areas. Typical measures include, but are not limited to, use of flagmen to stop traffic, construction of temporary sidewalks and access ramps, creation of secure pathways that provide buffers from open trenches, equipment and traffic, and use of advanced warning signs with directional arrows leading pedestrians to alternative, nearby crossing locations.

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At no time will the Contractor be allowed to block pedestrian access for both sides of any street at the same time or completely restrict north-south or east-west access.

7-10.1.1.3 Payment. Payment for all labor, materials and equipment used for compliance with this section and all traffic control related sections shall be considered as included in the cost of the lump sum line item for "Traffic Control and Pedestrian Control" and there will no other costs to the agency. In the absence of the Traffic Control item, payment shall be considered as included in the price paid for each item of the bid schedule.

7-10.1.2 Maintenance of Traffic Control Devices. The Contractor shall be responsible for maintenance of any and all traffic control devices (signs, delineators, barricades, etc.) that are required by the Traffic Control Plan. The Contractor shall ensure that all devices are maintained in the property location during holiday, overnight, and on weekends. Should it become necessary to use other forces to maintain the traffic control devices, the Contractor will be billed at the overtime rate for two (2) men and a vehicle (minimum, two (2) hours per call).

Contractor shall comply with Caltrans 2018 Standard Specification Section 12-4 MAINTAINING TRAFFIC for all traffic control and closures within Caltrans Right of Way

7-10.1.3 Hours of Operation. Construction work is to be performed only during the hours between 6:00 am and 7:00 am for traffic control and equipment setup, and from 7:00 am to 5:00 pm for work, Monday through Friday, unless special permission has been obtained from the Engineer. Unless otherwise authorized by the Engineer, the contractor will not be allowed to work during special events at the vicinity of the project location(s).

Work hours within Caltrans Right of Way will be determined by the approved encroachment permit. Caltrans ramp closures may be required to occur at night between the hours of 9:00 pm and 5:00 am.

7-10.1.4 Notice. Written notices shall be given to adjacent properties impacted by the construction work. Said notices shall include the hours and days of work, the date of beginning the work, the estimated date of completion and the type to be done. Contractor shall submit a sample notice and distribution list to the Engineer who will review and approve it prior to distribution.

7-10.2 Work Area Traffic & Pedestrian Control

7-10.2.1 General. No work shall occur in the right-of-way without a traffic and pedestrian control plan approved by the Engineer. All traffic control plans must coincide with the project phasing and schedule. The total length of the traffic control zone shall include buffer spaces, advance signing, striping transitions, and the Work site. Work shall not commence prior to the Engineer's approval of the Traffic Control Plan(s).

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Installation of all traffic control shall be the responsibility of the contractor and shall conform to the most recent edition of the following standards, plans and specifications:

1. California Manual on Uniform Traffic Control Devices (MUTCD)
2. San Diego Area Regional Standard Drawings (SDRSD)
3. Provided Traffic Control Plans (if any)
4. State of California Department of Transportation (Caltrans) Standard Plans
5. State of California Department of Transportation (Caltrans)
6. Standard Specifications, Standard Specifications for Public Works Construction ("Greenbook"), including all current supplements
7. Contract Documents

Traffic control plans shall be submitted to the Engineer a minimum of 20 days in advance of construction to allow for review.

Approval of the traffic control plan does not constitute an official Permit to begin construction.

A copy of all traffic requirements and traffic control plans approved by the Engineer must be kept on the job site for review by the Engineer's representative and police/safety personnel.

All temporary striping and pavement markings shall conform to the latest standard plans and specifications.

Traffic signals shall remain fully actuated at all times. Requests to have a traffic signal placed on "All-Way Red Flash" shall be submitted to the Engineer a minimum of 72 hours in advance.

Requests for changes to traffic signal timing to facilitate traffic control through an intersection, or in the event detector loops need to be cut in order to complete construction, shall be coordinated with the Engineer a minimum of 1 week in advance.

Requests to perform construction or set up traffic control outside of the stated work hours must be pre-approved by the Engineer as an amendment to the approved traffic control plan.

The Contractor shall maintain all traffic control devices in "like new" condition at all times that they are in use.

All conflicting signs shall be covered during construction in a manner that prevents them from being discerned in daylight or at night.

Warning (W) series signs used in work zones shall be Black on Orange background consistent with the latest standard plans and specifications, including size, shape and retro-reflectivity.

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All warning and construction signs shall be mounted on Type II or III barricades per the latest standard plans and specifications. Alternative mounting locations shall be pre-approved by the Engineer prior to construction and shown on the approved traffic control plan.

Overnight traffic control must be pre-approved by the Engineer and shall include the use of flashing beacons mounted on Type II or III barricades per the latest standard plans and specifications.

All cones, tubular delineators and other approved channelizing devices shall be a minimum height of 36" and have retro-reflective sleeves per the latest standard plans.

Where flaggers are required to facilitate traffic control they shall be properly equipped with a "STOP/SLOW" paddle per the latest standard plans and specifications. Flaggers are required to maintain two-way radio communications at all times.

Flaggers shall be present to assist pedestrians through work areas and to provide ingress/egress at private driveways.

Flaggers shall be used at intersections where the traffic signal has been placed on "All-Way Red Flash" if construction results in obstruction to driver line of sight, or as deemed necessary by the Engineer or his representative to ensure public safety.

Flaggers shall be present to assist with the merging of construction trucks and heavy equipment into and out of traffic. "Trucks Entering/Exiting" (C44 (CA)) signs may be required for frequent movements, at the direction of the Engineer.

Contractor shall remove all conflicting striping and pavement markings by "waterblasting". Alternative methods must be pre-approved by the Engineer. The Contractor shall immediately remove any debris as the result of this operation.

Pavement that is damaged due to the removal of striping, pavement markings and pavement markers shall be immediately repaired to the satisfaction of the Engineer.

Within 24 hours of completing the work, the contractor shall promptly restore the road back to satisfactory condition, which includes but is not limited to, paving, striping, markings, signing, and loop detection.

CalTrans Standard Specifications (current edition) and any supplemental provisions. Traffic control devices shall be installed in conformance with the current edition of the "Manual of Traffic Control Devices" as published by CalTrans. Where reference is made to the "State", it shall be understood that reference is to the Agency.

Contractor shall set up temporary traffic control at the beginning of each workday and promptly remove at the end of each day to allow for normal traffic operations after work hours. Requests

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to maintain temporary traffic control after hours must be pre-approved by the Engineer and approved on a TCP.

All traffic & pedestrian control must take into account and provide for ADA access in conformance with federal regulations.

7-10.2.2 Traffic & Pedestrian Control Plan

7-10.2.2.1 General. The Contractor shall submit and receive an approved Traffic and Pedestrian Control Plan(s) ("TCP") prior to the commencement of work.

The sheets of the TCP shall display the title, phase identification, name of the firm preparing the TCP, name and stamp of the Registered Traffic or Civil Engineer, approval block for each jurisdictional agency, north arrow, sheet number, and number of sheets comprising the TCP. General notes and symbol definitions shall be included when required. Adequate dimensioning shall be provided to allow for proper field installation.

The TCP shall be drawn to a 1 inch = 40 feet scale on common size sheets, either 8-1/2 inches x 11 inches, 8-1/2 inches x 14 inches, 11 inches x 17 inches, or 2-foot x 3-foot plan sheets as dictated by the length of the Work.

The TCP must conform to the Contract Documents and all referenced materials and regulations.

The TCP must address ADA access in, through and around the worksite in conformance with federal ADA regulations.

7-10.2.2.2 Payment. All costs for work area control and preparation of the TCP shall be paid in conformance with the bid line item for "Traffic and Pedestrian Control". If there is no line item then all costs associated with this work shall be included in the relevant line items and there shall be no additional costs to the Agency.

7-10.3 Haul Routes. Unless otherwise specified in the Special Provisions, haul routes shall be determined by the Contractor.

7-10.4 Safety

7-10.4.1 Work Site Safety

7-10.4.1.1 General. The Contractor shall provide safety measures as necessary to protect the public and workers within, or in the vicinity of, the Work site. The Contractor shall ensure that its operations will not create safety hazards.

The Contractor shall provide safety equipment, material, and assistance to Agency personnel so that they may properly inspect all phases of the Work.

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When asbestos is being removed, the requirements of the CCR Title 8, Div. 1, Chapter 4, Subchapter 4 and Subchapter 7 shall be implemented.

7-10.4.1.2 Work Site Safety Official. The Contractor shall designate in writing a "Project Safety Official" who shall be at the Work site at all times, and who shall be thoroughly familiar with the Contractor's Injury and Illness Prevention Program (IIPP), Code of Safe Practices (CSP) and all TCP's. The Project Safety Official shall be available at all times to abate any potential safety hazards and shall have the authority and responsibility to shut down an unsafe operation, if necessary.

7-10.4.2 Safety Orders

7-10.4.2.1 General. The Contractor shall have at the Work site, copies or suitable extracts of Construction Safety Orders, Tunnel Safety Orders, and General Industry Safety Orders issued by the State Division of Industrial Safety.

Prior to beginning any excavation 5 feet in depth or greater, the Contractor shall submit to the Engineer, the name of the "Competent Person" as defined in CCR, Title 8, Section 1504. The "Competent Person" shall be present at the Work site as required by Cal-OSHA.

7-10.4.2.2 Shoring Plan. Before excavating any trench 5 feet (1.5m) or more in depth, the Contractor shall submit a detailed working drawing (shoring plan) showing the design of the shoring, bracing, sloping, or other provisions used for the workers' protection. If the shoring plan varies from the shoring system standards, the shoring plan shall be prepared by a registered Structural or Civil Engineer. The shoring plan shall accommodate existing underground utilities. No excavation shall start until the Engineer has accepted the shoring plan and the Contractor has obtained a permit from the State Division of Industrial Safety. A copy of this permit shall be submitted to the Engineer. If the Contractor fails to submit a shoring plan or fails to comply with an accepted shoring plan, the Contractor shall suspend work at the affected location(s). Such suspended work shall not be the basis of a claim for Extra Work and the Contractor shall not receive additional compensation or contract time.

7-10.4.2.3 Payment. Payment for shoring shall be paid in accordance with the line item(s) for "Shoring". If there is no such line item said costs shall be included in the relevant bid line item and there shall be no additional costs to the Agency. Payment for compliance with the provisions of the safety orders and all other laws, ordinances, and regulations shall be included in the relevant bid line item and there shall be no additional costs to the Agency.

7-10.4.3 Use of Explosives. Explosives may be used only when authorized in writing by the Engineer, or as otherwise specified in the Special Provisions.

Explosives shall be handled, used, and stored in accordance with all applicable regulations.

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Prior to blasting, the Contactor shall comply with the following requirements:

- a) The jurisdictional law enforcement agency shall be notified 24 hours in advance of blasting.
- b) The jurisdictional fire department shall be notified 24 hours in advance of blasting.
- c) Blasting activities and schedule milestones shall be included in the Contractor's construction schedule.

For a Private Contract, specific permission shall be obtained from the Agency in writing, prior to any blasting operations in addition to the above requirements.

The Engineer's approval of the use of explosives shall not relieve the Contractor from liability for claims caused by blasting operations.

7-10.4.4 Hazardous Substances. An MSDS as described in CCR, Title 8, Section 5194, shall be maintained at the Work site for all hazardous material used by the Contractor.

Material usage shall be accomplished with strict adherence to California Division of Industrial Safety requirements and all manufacturer warnings and application instructions listed on the MSDS and on the product container label.

The Contractor shall notify the Engineer if a specified product cannot be used under safe conditions.

7-10.4.5 Confined Spaces

7-10.4.5.1 Confined Space Entry Program (CSEP). The Contractor shall be responsible for implementing, administering and maintaining a CSEP in accordance with CCR, Title 8, Sections 5156, 5157 and 5158.

Prior to the start of the Work, the Contractor shall prepare and submit a CSEP. The CSEP shall address all potential physical and environmental hazards and contain procedures for safe entry into confined spaces such as the following:

- a) Training of personnel.
- b) Purging and cleaning the space of materials and residue.
- c) Potential isolation and control of energy and material inflow.
- d) Controlled access to the space.
- e) Atmospheric testing of the space.
- f) Ventilation of the space.
- g) Special hazards consideration.
- h) Personal protective equipment.
- i) Rescue plan provisions.
- J) Spotter

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The submittal shall include the names of the Contractor's personnel, including each Subcontractor's personnel, assigned to the Work that will have CSEP responsibilities, their CSEP training, and their specific assignment and responsibility in carrying out the CSEP.

For all trenching work the Contractor shall utilize a Spotter for all times that anyone is entering, occupying or exiting the trench. The Spotter shall be fully trained and certified in accordance with all State and Federal regulations as well as trained in soil conditions and soil hazards as to trench conditions. As part of the CSEP the Contractor shall identify personnel that will be the designated Spotter for the duration of the project. If at any time the Contractor wishes to add or substitute the Spotter for the project they must provide a formal submittal to the Engineer two working days in advance of the date the Contractor wishes to use the Spotter.

No one shall enter, occupy or exit a trench without a Spotter constantly observing from a safe position outside of the trench.

Failure to provide an approved Spotter while anyone is entering, occupying or exiting the trench shall be consider a major safety violation and may subject the Contractor to default.

Any violation of this section that do not result in default does not waive the Agency's right to default the Contractor for subsequent violations.

7-10.4.5.2 Permit-Required Confined Spaces. Entry into permit-required confined spaces as defined in CCR, Title 8, Section 5157 may be required as a part of the Work. Manholes, tanks, vaults, pipelines, excavations, or other enclosed or partially enclosed spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. The Contractor shall implement a permit-required CSEP prior to performing any work in a permit-required confined space. A copy of the permit shall be available at all times for review by the Contractor and the Engineer at the Work site.

7-10.4.5.3 Payment. Payment for the CSEP shall be included in the Bid items for which the CSEP is required.

7-10.5 Security and Protective Devices

7-10.5.1 General. Security and protective devices shall consist of fencing, steel plates, or other devices as specified in the Special Provisions to protect open excavations.

7-10.5.2 Security Fencing. The Contractor shall completely fence open excavations. Security fencing shall conform to 304-3.5. Security fencing shall remain in place unless workers are present and construction operations are in progress during which time the Contractor shall provide equivalent security.

7-10.5.3 Steel Plate Covers. The Contractor shall:

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1. Protect transverse or longitudinal cuts, voids, trenches, holes, and excavations in the right-of-way that cannot be properly completed within 1 Working Day by adequately designed barricades and structural steel plates (plates) that will support legal vehicle loads in such a way as to preserve unobstructed traffic flow.

2. Secure approval, in advance, from the Engineer concerning the use of any bridging proposed on the Work.

3. Shore the trench adequately shored to support the bridging and traffic loads.

4. Design plates for HS 20-44 truck loading in accordance with Caltrans Bridge Design Specifications Manual.

5. Installation of plate types and methods:

a) For the minimum thickness of plates refer to Table 7-10.5.3(A):

Table 7-10.5.3(A)	
Trench Width	Minimum Plate Thickness
10"	1/2"
1'-11"	3/4"
2'-7"	7/8"
3'-5"	1"
5'-3"	1 1/4"

b) For spans greater than 5'-3", submit a structural design prepared by a California Registered Civil Engineer to the Engineer.

c) Make the surface of the plates skid-resistant with a nominal Coefficient Of Friction (COF) of 0.35 as determined by California Test Method 342.

d) Extend plates minimum 12" beyond the edges of the trench.

e) Plates must provide complete coverage to prevent any person, bicycle, motorcycle or motor vehicle from being endangered due to plate movement causing separations or gaps.

f) Install and secure plates against movement or displacement by using adjustable cleats, shims, welding, or other devices in a manner that will minimize noise.

g) Install plates using either Method (1) or (2):

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Method 1 [For speeds greater than 45 mph]: Mill the pavement to a depth equal to the thickness of the plate and to a width and length equal to the dimensions of the plate.

Method 2 [For Speeds less than 45 mph]: Attach approach plate(s) and ending plate (if longitudinal placement) to the roadway by a minimum of 2 dowels pre-drilled into the corners of the plate and drilled 2" into the pavement. Subsequent plates must be butted to each other. Compact fine graded asphalt concrete to form ramps, maximum slope 8.5 % with minimum 12" taper to cover all edges of the plates.

Alternative installation method may be submitted for the Engineer's review and approval.

The Contractor is responsible for maintenance of the plates, shoring, and asphalt concrete ramps or any other approved device used to secure the plates. The Contractor must immediately mobilize necessary personnel and equipment after being notified by anyone of a repair needed e.g., plate movement, noise, anchors, and asphalt ramps. Failure to respond to the emergency request within 2 hours will be grounds for the Agency to cause the necessary repairs and adjustments. All costs for any action by or on behalf of the Agency to secure, adjust or repair trench plates shall be borne by the Contractor and be deducted from any amounts due. Failure to comply is a default and breach of contract may result in automatic grounds for suspension of permit, Contract, or both.

When plates are removed, repair any damage to the pavement with fine graded asphalt concrete mix or slurry seal to the satisfactory to the Engineer.

Payment for Steel Plate Covers is included in the relevant Bid items and there shall be no additional costs to the Agency.

7-10.6 Storage of Equipment and Materials in Public Streets. The Contractor must submit a TCP indicated the location and protection of equipment or materials to be stored in the public right-of-way to the Engineer for consideration. The Contractor shall not store equipment or materials in the right-of-way without a prior approved TCP authorizing the storage.

7-10.7 Street Closures, Detours, Barricades. No street will be closed to traffic. If the Contractor wishes to close a street to traffic they submit a TCP to the Engineer for consideration indicating the closure location, detours, phasing and duration. No closures shall occur without an approved TCP.

7-10.8 Parking Restrictions. The contractor is responsible for posting "no parking" signs on any section of street where such a prohibition is necessary to allow the work to be accomplished. The number of "no parking" signs required to provide adequate notice will be determined by the contractor and approved by the Engineer. Generally, signs shall be not greater than fifty (50) feet apart and face oncoming traffic. Such signs shall also give specific information as to the dates and times when parking is prohibited, and shall be posted three (3) calendar days before the effective

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date. If weather or other circumstances prevent work from being finished before expiration of the posted parking ban, new signs with revised "no parking" information shall be posted at least seventy-two (72) hours before any tow-aways by the Police Department are requested. It is the contractor's responsibility to contact the Police Department and arrange for tow-aways and such arrangements shall be made no later than the day before tow-aways will be needed on any section of street. The signs shall be clean and free of graffiti and readable from 50 feet.

If the above telephone numbers are changed, the contractor is not relieved of responsibility for notifying the various departments.

7-10.9 Safety Orders. The Contractor shall be solely and completely responsible for conditions on the job site, including safety of all persons (including employees) and property during performance of the work. This requirement shall apply continuously and is not limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor, the California Occupational Safety and Health Act (OSHA), and all other applicable Federal, State, County, and City laws, ordinances, codes, the requirements set forth below, and any regulations that may be detailed in other parts of these documents. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve them from compliance with the obligations and penalties.

The Contractor shall develop and maintain for the duration of this contract, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

The duty of the Agency and its private consultants is to conduct construction review of the Contractor's performance and shall not include a review or approval of adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

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

7-10.10 Public Safety During Non-Working Hours. Notwithstanding the Contractor's primary responsibility for safety on the job site when the Contractor is not present, the Engineer after attempting to contact the Contractor, may direct Agency or other forces to perform any functions he may deem necessary to ensure public safety at or in the vicinity of the job site. If such procedure is implemented, the Contractor will bear all expenses incurred by the Agency and all such costs may be deducted from any amounts due to the Contractor.

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The Engineer's judgment in all cases of whether additional measures need to be to make the site safe shall be final. However, this does not alleviate the Contractor's responsibility and liability to maintain a safe worksite at all times.

If the Agency takes action in these matters on behalf of the Contractor, the Contractor shall hold the Agency and all its contractors and consultants harmless and indemnify each in accordance with the Contract Documents whether any of them were negligent or not.

7-10.11 Hazardous Substances. If the Contractor encounters material in demolition or work that he has reason to believe may be hazardous waste, as defined by Section 25117 of the Health and Safety Code, he shall immediately so notify the Engineer in writing. Demolition in the immediate area of the suspected hazardous material shall be suspended until the Engineer authorizes it to be resumed. If such suspension delays the current controlling operation, the Contractor will be granted an extension of time as provided in Section 5-5 "Delays" of the Standard Specifications.

Upon discovery of unanticipated asbestos or a hazardous substance, immediately stop working in the area of discovery if:

- 1.) You reasonably believe the substance is asbestos as defined in Labor Code § 6501.7 or a hazardous substance as defined in Health & Safety Code § 25316 and § 25317.
- 2.) Its presence is not described in the Plans.
- 3.) The substance has not been made harmless.

The Agency reserves the right to use other forces for exploratory work to identify and determine the extent of such material and for removing hazardous material from such area.

Except as expressly set forth in this Section, the Contractor shall not cause or permit any Hazardous Material to be used, stored, transported, generated or disposed of in or about the Project Site by the Contractor, Subcontractors, or their respective employees, agents or sub-subcontractors. The Agency acknowledges that the Contractor may need to use, store, generate or transport certain Hazardous Materials on the Project Site in the course of construction and the Agency consents to such use, storage, generation or transportation provided that the Contractor strictly complies with the requirements of this Section. In no event shall any Hazardous Material be incorporated into any of the Work.

The Contractor agrees to deliver to the Agency prior to the issuance of a Notice to Proceed a list ("Hazardous Materials List") identifying each type of Hazardous Material to be used, stored, generated or transported on the Project Site and setting forth for each type of Hazardous Material, the nature of use, the extent of use, storage, generation and transportation, and any and all governmental approvals or permits required in connection with the use, storage, generation, transportation and disposal of such Hazardous Materials. If the Contractor or any Subcontractor proposes to use any material listed on the Federal/OSHA Director's List of Hazardous Materials in the performance of any of the Work, the Contractor shall also deliver to the Agency, prior to commencing Work, a copy of the Material Safety Data Sheets in the form provided by the Agency with the award forms. The Agency shall have the right to withhold the

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Agency's consent to the use, storage, transportation, generation or disposal of any Hazardous Material on the Project Site. The Contractor shall deliver to the Agency an updated Hazardous Materials List (i) before any Hazardous Material not described in the latest Hazardous Material List is brought onto the Project Site (ii) on or before the date the Contractor obtains any additional permits or approvals relating to the use, storage, transportation, generation or disposal of any Hazardous Materials or (iii) on or before the date the Contractor intensifies the use, storage, generation or transportation of any Hazardous Material. The Contractor shall maintain and deliver to the Agency copies of any and all permits for all of its operations, including, without limitation those relating to the use, storage, generation, transportation or disposal of Hazardous Materials. The Contractor shall maintain and, upon the Agency's request, deliver copies of any and all manifests and other records relating to the transportation and/or disposal of any Hazardous Material.

Use, storage, transportation, generation and disposal of any and all Hazardous Materials by the Contractor, any Subcontractor or their respective employees, agents or subcontractors shall at all times be in compliance with 22 CA Code of Regulations Division 4.5 and all Hazardous Materials Laws (including, without limitation, any notices or warnings required by Proposition 65 regulations) and with the highest standards and the best practices and procedures applicable to the use, storage, transportation and disposal of such Hazardous Materials. The Contractor shall not store any quantity of any Hazardous Material on the Project Site that is greater than the quantity reasonably necessary for day-to-day operations. The Contractor shall promptly dispose of any waste Hazardous Materials. Any disposal of Hazardous Materials shall be at government approved disposal sites off of the Project Site. The Contractor shall be responsible for providing any and all notices required to be given with respect to any Hazardous Material and for disclosing the use, storage, transportation and generation to all of the Contractor's employees, agents, Subcontractors, licensees and invitees. The Contractor shall be strictly liable for the use, storage, transportation, generation and disposal of all Hazardous Materials by its employees, agents, Subcontractors, licensees and invitees.

If the Contractor knows or has reasonable cause to believe that the release of any Hazardous Material has occurred or will occur on the Project Site, the Contractor shall immediately disclose the release to the Agency in writing, whether or not the Contractor considers the release to be material and whether or not such release is required to be reported to any governmental entity. If any release of Hazardous Materials is required to be disclosed to any governmental entity, the Contractor shall notify the Agency of such requirement and shall provide such written disclosure as may be required to any such governmental entity or entities pursuant to applicable law.

If the presence of any Hazardous Material on the Project Site caused or permitted by the Contractor, any subcontractor or their respective employees, agents, or subcontractors results in any contamination of the Project Site, the Contractor shall promptly take all actions at the Contractor's sole expense as are necessary to return the Project Site to the condition existing prior to the introduction of any such Hazardous Material to the Project Site, provided that the Agency's approval of such action shall first be obtained. The Contractor shall be responsible for any and all damages suffered by the Agency as the result of such contamination, including,

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without limitation, any diminution in value of the Project Site, costs of investigation, remediation, and any claims by other tenants for costs or expenses caused by the contamination and any investigation and remediation.

As used herein, the term "Hazardous Material" means any hazardous, toxic or infectious substance, material, or waste which is, or becomes, regulated by any local governmental entity, the State of California, or the United States Government under any law, regulation, or ordinance regulating or controlling any Hazardous Material (the "Hazardous Materials Laws"). The term "Hazardous Material" includes, without limitation, any material or substance which is (i) defined as a "hazardous waste," "extremely hazardous waste" or "restricted hazardous waste" under Sections 25115, 25117 or 25122.7, or listed pursuant to Section 25140, of the California Health and Safety Code, Division 20, Chapter 6.5 (Hazardous Waste Control Law), (ii) defined as a "hazardous substance" under Section 25316 of the California Health and Safety Code, Division 2, Chapter 6.8 (Carpenter-Presly-Tanner Hazardous Substance Account Act), (iii) defined as a "hazardous material," "hazardous substance" or "hazardous waste" under Section 25501 of the California Health and Safety Code, Division 20, Chapter 6.95 (Hazardous Substances), (v) defined as a "regulated medical waste" under 40 C.F.R. § 259.10(a) or § 259.30, (v) petroleum or petroleum product, (vi) asbestos, (vii) listed under Article 9 and defined as hazardous or extremely hazardous pursuant to Article 11 of Title 22 of the California Administrative Code, Division 4, Chapter 20, (viii) designated as a "hazardous substance" pursuant to Section 311 of the Federal Water Pollution Control Act (33 U.S.C. Section 1317), (ix) defined as a "hazardous waste" pursuant to Section 1004 of the Federal Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq. (42 U.S.C. Section 6903), or (x) defined as a "hazardous substance" pursuant to Section 101 of the Comprehensive Environmental Response Compensation and Liability Act, 42 U.S.C. Section 9601 et seq. (42 U.S.C. Section 9601).

7-10.12 Temporary Project Signs

7-10.12.1 Street Name Signs. During any work that disturbs or requires the removal of a street name sign provide and maintain temporary street name signs at each intersection until the permanent street name signs have been placed.

Construct and place temporary street name signs to the following requirements:

1. 5" high black lettering on 8"x 32" white blades.
2. The bottom of the blades must be at least 7' above ground line and mounted on white 4"x 4" posts.
3. Posts must be placed radial to mid-point of curb returns, 15' in from the future face of curb.

7-10.12.2 Project Identification Sign. Project Identification Signs will be provided by the Contractor as required herein, or on the plans.

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7-10.12.3 Payment. All costs for providing and maintaining these signs in good condition throughout the project shall be included in the cost for the line item "Traffic Control." If there is no such line item then the costs for this signing will be included in the most relevant line items.

7-11 PATENTS, TRADEMARKS, AND COPYRIGHTS. You must pay, at no additional cost to the Agency, all applicable royalties and license fees on any and all matters arising in connection with the Work. You must defend all suits or claims for infringement of patent, trademark, and copyrights against the Agency and any other Indemnified Parties, and must save the Agency and any other Indemnified Parties harmless from loss on account thereof for any and all matters arising in connection with the Work on the Project, such costs to be paid at no additional cost to the Agency, except with respect to any particular design process or the product of a particular manufacturer or manufacturers specified and required by the Agency, other than pursuant to your recommendation or suggestion; provided however, if you have reason to believe that the design, process or product so specified is an infringement of a patent, you will be responsible for any loss resulting unless you have provided the Engineer with prompt written notice of your belief, and the Engineer has nevertheless elected to go forward with such design, process, or product so specified.

7-12 ADVERTISING. The names, addresses and specialties of Contractors, Subcontractors, architects, or engineers may be displayed on removable signs. The size and location shall be subject to the Engineer's approval.

Commercial advertising matter shall not be attached to or painted on the surfaces of buildings, fences, canopies, or barricades.

Any advertisement referring to the Agency as a user of a product, material, or service by you or any Subcontractor and Supplier is expressly prohibited without the Agency's prior written approval.

7-13 LAWS TO BE OBSERVED. The Contractor shall keep itself fully informed of State and national laws and County and municipal ordinances and regulations which in any manner affect those employed in the Work or the materials used in the Work or in any way affect the conduct of the Work. The Contractor shall at all times observe and comply with such laws, ordinances, and regulations.

The Contract shall be governed by the law of the State of California applicable to contracts to be performed wholly within the State of California.

Rules of law shall prevail over any provision contained in any of the Bid and Contract Documents which may be in conflict thereto or inconsistent therewith.

The Contractor shall conform to and abide by all local, State and Federal building, sanitary, health and safety laws, rules, and regulations, including all City ordinances and regulations. To the best knowledge and belief of the parties, the Bid and Contract Documents contain no provision that

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is contrary to Federal or State law or any ruling or any regulations of a Federal or State agency. Should, however, any provisions of the Bid and Contract Documents at any time during its term be in conflict with any such law, ruling or regulation, and such provisions of the Bid and Contract Documents are thus held inoperative, the remaining provisions of the Bid and Contract Documents shall, nevertheless, remain in full force and effect.

Whenever the provisions of any chapter of the Bid and Contract Documents may conflict with any agreement or regulation of any kind in force among members of any trade association, union or council which regulates or distinguishes what work shall or shall not be included in the work of any particular trade, the Contractor shall make all necessary arrangements to reconcile any such conflict without recourse to the Agency.

7-13.1 Environmental & Safety Laws. Following is not an exhaustive list of the laws that may govern. It is a partial list of some specific laws that the Contractor must be aware of and comply with. They are listed here for convenience.

1. Environmental Protection Agency regulations (40 CFR, Part 15).
2. Clean Air Act of 1970, e.g., §306 (42 U.S.C. 7606), Executive Order 11738, prohibiting contracting with Clean Air Act violators; and §§608 and 609 (42 U.S.C. 7671g, 7671h) as amended November 15, 1990, prohibiting the intentional release of chlorofluorocarbons into the environment when performing Work.
3. Clean Water Grant Program Bulletin 76A which augments the National Historic Preservation Act of 1966 (16 U.S.C. 470) as specified under §01560, "Temporary Environmental Controls" of the General Requirements.
4. CAL OSHA 5189 "Process Safety Management," CAL OSHA 3220 "Emergency Action Plan," Federal OSHA 29, CFR 1910, facilities Process Safety Management (PSM) manual, and the Agency's Risk Management Plan.
5. California Title 8, §5208 and §1529, and Title 40 CFR Part 61.
6. Flood Disaster Protection Act of 1973 (42 USC 4001 et seq, as amended).
7. Senate Bill 198 and specifically must have a written Injury Prevention Program on file with the Agency in accordance with all applicable standards, orders, or requirements of California Labor Code, §6401.7. This Program must be submitted to the Engineer at the Pre-construction Meeting.
8. State Energy Conservation Plan issued in compliance with the Energy Policy and Conservation Act (P.L. 94-163) as set forth in Division 15 of the Public Resources Code of the State.

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9. Clean Water Act (CWA) - The Federal Water Pollution Control Act enacted in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless said discharge is in accordance with an NPDES permit. The 1987 amendments include guidelines for regulating municipal, industrial, and construction storm water discharges under the NPDES program.
10. Endangered Species Act of 1973 (ESA; 7 U.S.C. §136, 16 U.S.C. §1531 et seq).

7-13.2 Americans with Disabilities

1. The Contractor must warrant and certify that all Project Plans and Specifications prepared by you in accordance with the Contract meet all current requirements of the California Building Code, California Code of Regulations, Title 24 (Title 24) and the Americans with Disabilities Act (ADA) and the ADA Standards for Accessible Design. As a condition precedent to Award of the Contract, submit to Agency the Contractor/Design-Builder Certification for Title 24/ADA Compliance.
2. The Contractor must comply with all portions of the ADA and Title 24. For specific services and public accommodations, you may contact the Office of the Americans with Disabilities Act, Civil Rights Division, U.S. Department of Justice, P.O. Box 66118, Washington, D.C. 20035-6118; phone number (202) 514-0301.
3. The Contractor is responsible for administering their own ADA and Title 24 program. The Contractor must ensure that these ADA requirements are included in the Subcontracts.
4. The Contractor must pay all claims, costs, losses and damages incurred by the Agency in undertaking remedial action to correct violations of ADA or Title 24. To effectuate remedial action, the Agency will issue a Change Order incorporating the necessary revisions in the Construction Documents. The Agency will be entitled to an appropriate decrease in the Contract Price, and, if the Parties are unable to agree as to the amount thereof, the Agency may unilaterally issue the Change Order.
5. Code Implementation:
 - a) The 2010 Americans with Disabilities Act (ADA) regulations took effect on April 15, 2011.
 - b) The 2010 ADA Standards for Accessible Design will take effect on April 15, 2012. Designers may choose either the 1991 ADAAG or the 2010 ADA Standards if the project is to be designed before the adoption date but all new construction and alteration projects must comply with the 2010 ADA Standards if construction is to start on or after April 15, 2012.

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- c) The 2010 California Building Code, California Code of Regulations, Title 24 took effect on January 1, 2011.
6. The Contractor must certify to the Agency that you will comply with the ADA by adhering to all of the provisions of the ADA listed below.
 7. The Contractor must not discriminate against qualified persons with disabilities in any aspects of employment, including recruitment, hiring, promotions, conditions and privileges of employment, training, compensation, benefits, discipline, layoffs, and termination of employment.
 8. No qualified individual with a disability may be excluded on the basis of disability, from participation in, or be denied the benefits of services, programs, or activities by the Contractor or Subcontractors providing services for the Agency.
 9. The Contractor must post a statement addressing the requirements of the ADA in a prominent place at the worksite.
 10. The Contractor must require in each Subcontract that the Subcontractor abide by these provisions. The Contractor and Subcontractors are individually responsible for your own ADA employment programs.

7-13.3 Apprentices on Public Works. You must abide by the requirements of §§1777.5, 1777.6, and 1777.7 of the State of California Labor Code concerning the employment of apprentices by contractors and subcontractors performing public works contracts.

7-14 ANTITRUST CLAIMS. Section 7103.5 of the Public Contract Code provides:

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

7-15 HOLD HARMLESS AND INDEMNIFICATION. To the fullest extent permitted by law, the Contractor shall protect, indemnify, defend (with counsel selected and satisfactory to the party being held harmless and indemnified) and hold harmless the Agency, the Successor Agency, (if any), and all private consultants hired by the Agency or volunteering to work on the project and for each their elected officials, appointees, officers, agents, employees, contract employees, consultants, heirs and assigns from and against any and all types of liability, causes of action,

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claims, damages, demands, losses, expenses (including, but not limited to all attorneys' fees and legal costs), arising out of or resulting from, either directly or indirectly:

- (1) the performance of their work;
- (2) the Work until the Project is accepted as final by the Agency Board;
- (3) the breach of the covenants or the obligations of the Contractor under the Contract, including but not limited to,
 - a) violations of or a failure to comply with any safety order, rule, code or regulation,
 - b) defective or non-compliant work, or
 - c) any and all liens, stop notices, charges of every type, nature or kind which may be at any time filed or claimed against the Project or any portion thereof, or the Agency as a consequence of acts of the Contractor, his Subcontractors, material suppliers or others for which they are responsible, provided that the Agency is not in default of its payment obligations under the Contract;
- (4) any equal opportunity, unemployment, withholding, social security, workers' compensation or other employee benefit claims with respect to the Contractor or any Subcontractor arising out of the Work; or
- (5) violation of any local, State or Federal law, regulation or code by Contractor or any Subcontractor.
- (6) Any intentional act by the Contractor or any of the Contractor's subcontractors of any tier, suppliers, employees, agents, officers, owners, consultants and volunteers.

Except as specifically limited as set forth below, the indemnification by the Contractor of the indemnified parties under this section shall apply regardless of any concurrent or contributory active and/or passive negligent act or omission of any indemnified party; provided, however, that the Contractor should not be obligated to indemnify a party for liability arising from the sole negligence or willful misconduct of the indemnified party. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this section. Such indemnification and hold harmless shall include all defense-related fees and costs associated with the defense of each and every held harmless and indemnified party, by counsel selected by each and every held harmless and indemnified party. Contractor's indemnification obligations as set forth in this section shall not terminate on completion of the Work, but shall survive in perpetuity.

In any and all claims against the Agency, the Successor Agency, (if any), and all private consultants hired by the Agency or volunteering to work on the project and for each their elected officials, appointees, officers, agents, employees, contract employees, consultants, heirs and assigns by any employee of the Contractor, any Subcontractor, any supplier of the Contractor or

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Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this section shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor or any supplier of either of them under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

The provisions in this section shall survive the termination or expiration of the Contract until such time as action against any indemnified party on account of the matter covered by the indemnity is barred by the applicable statute of limitations, and shall not be limited in any way by the amount of insurance obtained by any indemnified party.

7-16 COMMUNITY LIAISON. Retain a community liaison throughout the Contract Time.

The community liaison must closely coordinate the Work with the businesses, institutions and residents impacted by the Project. Example duties of the community liaison include notification to the businesses, institutions and residents of the commencement of construction activities not less than 5 Working Days in advance, coordination of access for vehicular and pedestrian traffic to businesses, institutions and residences impacted by the Project, response to community questions and complaints related to your activities, reporting of liaison activities at all Project progress meetings scheduled by the Engineer, attendance to the Project Pre-construction Meeting, and attendance at 2 community meetings.

7-16.1 Public Notice by Contractor. Furnish and distribute public notices in the form of door hangers using the Agency's approved format to all occupants along streets where construction work is to be performed at least 1 week before starting the Work. For all work on private property, contact each owner individually a minimum of 15 days prior to the Work. If the Work has been delayed, re-notify residents of the new work schedule.

7-17 CONFLICT OF INTEREST. The Contractor shall establish and make known to your employees appropriate safeguards to prohibit employees from using their positions for a purpose that is, or gives the appearance of being, motivated by desire for private gain for themselves or others, particularly those with whom they have family, business, or other relationships. Project personnel must not accept gratuities or any other favors from Subcontractors or potential subcontractors.

The Contractor is subject to all federal, state, and local conflict of interest laws, regulations, and policies applicable to public contracts and procurement practices, e.g., California Government Code §§1090, et. seq. and 81000, et. seq. If, in performing the Work, you make, or participate in, a "governmental decision" in accordance with title 2, §18701(a)(2) of the California Code of Regulations, or performs the same or substantially all the same duties for the Agency that would otherwise be performed by an Agency employee holding a position specified in the applicable department's conflict of interest code, you will be subject to a conflict of interest code requiring the completion of one or more statements of economic interests disclosing your relevant financial interests.

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If required, statements of economic interests must be made on Fair Political Practices Commission Form 700 and filed with the Agency. You must file a Form 700 (Assuming Office Statement) within 30 days of the Agency's written determination that you will be subject to a conflict of interest code. File a Form 700 (Annual Statement) on or before April 1, disclosing any financial interests held during the previous calendar year for which you were subject to a conflict of interest code.

If the Agency requires you to file a statement of economic interests as a result of the Work performed, you will be considered a "Agency Official" subject to the provisions of the Agency Ethics Ordinance, including the prohibition against lobbying the Agency for 1 year following the expiration or termination of the Contract.

If the Contractor employed on the Project must not accept gratuities or any other favors from any Subcontractors or potential Subcontractors. The Contractor must not recommend or specify any product, supplier, or contractor with whom you have a direct or indirect financial or organizational interest or relationship that would violate conflict of interest laws, regulations, or policies.

If the Contractor violates any conflict of interest laws or any of these conflict of interest provisions, the violation will be grounds for immediate termination of this Contract. Further, the violation subjects you to liability to the Agency for all damages sustained as a result of the violation.

SECTION 9 - MEASUREMENT AND PAYMENT

9-1 MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK

9-1.1 General. Unless otherwise specified, quantities of work shall be determined from measurements or dimensions in horizontal planes. However, linear quantities of pipe, piling, fencing and timber shall be considered as being the true length measured along longitudinal axis.

Unless otherwise provided in the Special Provisions, volumetric quantities shall be the product of the mean area of vertical or horizontal sections and the intervening horizontal or vertical dimension.

Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities and shall immediately inform the Engineer of any discrepancy between the Bid and Contract Documents and actual conditions. No work shall be done in any area of such discrepancy until approval for same has been given in writing by the Engineer.

It is the Contractor's sole responsibility to perform its own, independent, quantity take offs for final pay quantity bid items. All final pay quantities shall be verified and approved by the Engineer.

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9-1.2 Methods of Measurement. Materials and items of work which are to be paid for on basis of measurement shall be measured in accordance with methods stipulated in the particular sections involved.

9-1.3 Certified Weights. When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales or, when approved by the Engineer, on a completely automated weighing and recording system. The Contractor shall furnish the Engineer with duplicate licensed weighmaster's certificates showing actual net weights. The Agency will accept the certificates as evidence of weights delivered.

9-1.4 Units of Measurement. A metric ton or "tonne" is equal to 1,000 kilograms and the unit of liquid measure is a Liter (in U.S. Standard Measures, a pound is an avoirdupois pound, a ton is 2,000 pounds; and the unit of liquid measure is the gallon).

The system of measure for this Contract shall be the U.S. Standard Measures. Data provided by the Agency for final pay or other quantities are for information purposes only and shall not be grounds for disputing actual quantities of work performed and their payment.

9-2 LUMP SUM WORK. Items for which quantities are indicated "Lump Sum", "LS", or "Job", shall be paid for at the price indicated in the Bid. Payment for lump sum items of work shall incorporate all costs associated with that item including but not limited to manpower, equipment, materials, overhead, fees, taxes, and profit and there shall be no additional costs to the Agency.

When required by the Special Provisions or requested by the Engineer, the Contractor shall submit to the Engineer within 15 days after award of Contract, a detailed Schedule of Values 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 Contract Price or Bid item price 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.

9-3 PAYMENT

9-3.1 General. The quantities listed in the Proposal will not govern final payment. Payment to the Contractor will be made only actual quantities of Contract items constructed in accordance with the Contract Documents. Upon completion of the Work, if the actual quantities show either an increase or decrease from the quantities in the Proposal, the Contract Unit Prices will prevail except as otherwise stated herein.

Payment will not be made for materials wasted or disposed of in a manner not called for under the Contract. This includes rejected material not unloaded from vehicles, material rejected after it has been placed, and material placed outside of the Plan lines. No compensation will be allowed for disposing of rejected or excess material.

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The Contract Documents specify in several locations when the Agency may deduct costs for Agency actions. These deductions will be made on the next progress payment to the Contractor that is due, upon approval by the Engineer.

Payment shall not relieve the Contractor from its obligations under the Contract; nor shall such payment be construed to be acceptance of any of the Work. Payment shall not be construed as the transfer of ownership of any equipment or materials to the Agency. Responsibility of ownership shall remain with the Contractor who shall be obligated to store any fully or partially completed work or structure for which payment has been made; or replace any materials or equipment required to be provided under the Contract which may be damaged, lost, stolen or otherwise degraded in any way prior to completion of the Work.

Warranty periods shall not be affected by any payment.

If, within the time fixed by law, a properly executed notice to stop payment is filed with the Agency, due to the Contractor's failure to pay for labor or materials used in the Work, all money due for such labor or materials will be withheld from payment to the Contractor in accordance with applicable laws.

At the expiration of 35 days from the date of acceptance of the performance of the Contract by the Board, or as prescribed by law, the amount deducted from the final estimate and retained by the Agency will be paid to the Contractor except such amounts as are required by law to be withheld by properly executed and filed notices to stop payment, or as may be authorized by the Contract to be further retained.

Guarantee periods shall not be affected by any payment, but shall commence on the Date of Completion specified in the "Notice of Completion."

9-3.2 Partial and Final Payment. After award of the Contract the Engineer will establish a periodic day of the month for the purpose of making monthly progress payments. The Contractor may request in writing that such monthly submittal date be changed. The Engineer may approve such request when it is compatible with the Agency's payment procedure.

Each month the Engineer will make an approximate measurement of the work performed to the closure date and estimate its value based on contract unit prices as a basis for making monthly progress payments, and in accordance with 9-2. When the Work has been satisfactorily completed, the Engineer will determine the quantity of work performed and prepare the final estimate.

The Agency shall retain not less than five (5%) percent from each progress payment until acceptance project by the Board.

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No progress payment made to the Contractor or its Sureties will constitute a waiver of accrued liquidated damages (if any).

No payment shall be required to be made by the Agency when in the judgment of the Agency:

1. Work is defective or incomplete;
2. Third party claims are filed or the Agency has reasonable evidence indicating probable filing of such claims;
3. The Contractor fails to make payments in accordance with California law to Subcontractors, or for labor, materials or equipment;
4. The remaining work cannot be completed for the unpaid balance remaining in the Contract;
5. The Contractor has caused damage to the Agency or another in the course of executing the Work and has failed to make the aggrieved party whole;
6. The Agency has reasonable evidence that the Work will not be completed within the Contract Time and liquidated damages may exceed any amounts due or that remain in the Contract; or
7. The Agency has reasonable evidence of persistent failure of the Contractor to carry out the Work in accordance with the Bid and Contract Documents.

No payment made hereunder shall be construed to be an approval or acceptance of any defective or non-compliant work or improper materials.

Neither the final payment shall become due until the Contractor submits to the Agency the following:

1. Completes, executes and submits all "Close-Out Documents."
2. Consent of the sureties issuing the Bond for Faithful Performance and Contractor's Payment Bond to final payment, and
3. If required by the Agency, other data or documentation establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Agency. If any Subcontractor refuses to furnish a release or waiver required by the Agency, the Contractor may furnish a bond satisfactory to the Agency to indemnify the Agency against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Agency all monies that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
4. All complete and correct certified payroll documents. If the Contractor's payroll is being reviewed by the Department of Industrial Relations then a release from the DIR is required.

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5. All warranties and manuals.
6. All training has occurred to the satisfaction of the Engineer.
7. All other deliverables have been accepted by the Engineer.

Submission by the Contractor of an invoice or invoice coversheet marked "Final Payment" shall operate as a release to the Agency, its officers, elected officials, officers, employees, volunteers, agents and private consultants hired by the Agency or volunteering to work on the project of all claims and all liability to the Contractor for every act, omission or items furnished in connection with the Work by Agency, its officers, elected officials, officers, employees, volunteers, agents and private consultants hired by the Agency or volunteering to work on the project relating to or arising out of the Work. No payment, final or otherwise, shall operate to release the Contractor or the Contractor's sureties from any obligations under this Contract or the law for the Contractor's Faithful Performance and Payment Bonds.

9-3.3 Delivered Materials. The Agency may pay for 50% of the cost of materials and equipment delivered to the project but not incorporated into the Work in the following progress payment if the Engineer determines that sufficient safeguards have been taken by the Contractor to protect the materials and equipment. Payment does not relieve the Contractor of the responsibility and liability for installing and incorporating the materials and equipment into the work in an "as new" condition. The Contractor shall at all time be responsible for all materials and equipment until the project is accepted by the Agency. The Engineer may reject any material and equipment that is not in a new condition or is damaged in any way, whether paid for or not. Materials and equipment not secured on the project site or a secured yard in the City limits will not be eligible for payment until they are incorporated into the project.

9-3.4 Mobilization/Demobilization. Mobilization and demobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the move-on and move-off operations of personnel, equipment, supplies, and incidentals to the project site, for the establishment of all offices, storage yards, buildings, hook-up and disconnects for utility services, and other facilities necessary for work on the Project, and for all other work and operations including the application for and acquiring of permits from other agencies, which must be performed or costs incurred prior to beginning work on the various items of work on the Project Site.

When applicable, Mobilization/Demobilization shall be paid for at the Contract lump sum price bid. The lump sum price for Mobilization/Demobilization shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, overhead, taxes, fees and profit for doing all the work involved in mobilization and demobilization. When the Contract does not include a contract pay item for mobilization and demobilization full compensation for any necessary mobilization and demobilization required shall be considered as included in the relevant items of work and there will be no additional costs to the Agency.

Payments for Mobilization/Demobilization will be made in accordance with the following schedule:

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- (i) 60% after construction begins.
- (ii) 40% after acceptance of the completed project by the Engineer.

9-3.5 Field Orders. Field Order items of work may be paid for under this section provided that the dollar value of all such changes does not exceed \$5,000 for each individual field order and the accumulative total of Field Orders does not exceed the Field Order Bid Item.

The Field Order bid item allowance is predetermined by the Agency, is included in all bids and is not subject to change by the Bidder.

Only the Engineer or Engineer's pre-designated representative may order work to be paid under the Field Order line item.

The description of the scope of work on any Field Order may be general in nature but without exception shall include all other work necessary to complete the work generally described.

The amount indicated on any Field Order shall include all cost for all equipment, materials, labor, overhead, mark-ups, profit, taxes, fees, effect on other items of work, all other work necessary to complete the Field Order work and profit. By executing the Field Order, Contractor agrees that no additional compensation or claims for items of Work listed in the Field Order will be allowed.

Payment for work under this bid item will only be made upon presentation of a properly executed Field Order attached to a monthly invoice and confirmed by the Engineer.

This bid item is considered incidental to the Contract and may be deleted partially or in its entirety.

The contractor is not entitled to any of the unused portion of this bid item.

This item is not subject to any provisions regarding the sharing of cost savings in these specifications or the contract.

9-3.6 Prompt Payment. Not later than ten (10) days after receipt of each progress payment, the Contractor or Subcontractor shall pay to any subcontractor the respective amounts allowed the Contractor on account of the work performed by the Subcontractor to the extent of each Subcontractor's interest therein, unless the parties have agreed otherwise in writing. In cases of Subcontractor performance deficiencies, the Contractor shall make written notice of any withholding to the Subcontractor with a copy to the Engineer. Upon correction of the deficiency, the Contractor shall pay the Subcontractor the amount previously withheld not later than 14 days after payment by the Agency. Any violation of California Business and Professions Code, § 7108.5 concerning prompt payment to Subcontractors shall subject the violating Contractor or Subcontractor to the penalties, sanction and other remedies of that section. This section shall

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not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or Subcontractor in the event of a dispute involving late payment or nonpayment by the Prime Contractor or a subcontractor, deficient subcontract performance, or noncompliance by a subcontractor.

9-3.7 Prompt Payment of Funds Withheld To Subcontractors. The Contractor shall promptly pay all subcontractor's for all monies due as the work progresses after receiving payment from the Agency in accordance with California law.

9-4 WAIVER OF CLAIMS. Submission of an invoice labeled "final invoice" in any way shall constitute a waiver of any and all claims not already submitted by the Contractor and releases the Agency, the Successor Agency, and all private consultants hired by the Agency or volunteering to work on the project and for each their elected officials, appointees, officers, agents, employees, contract employees, consultants, heirs and assigns from all claims and all liability for all things done or furnished in connection with the Work, and every act of the Agency, the Successor Agency, and all private consultants hired by the Agency or volunteering to work on the project and for each their elected officials, appointees, officers, agents, employees, contract employees, consultants, heirs and assigns and others relating to or arising out of the Work and related to those undisputed amounts. No payment, however, final or otherwise, will release the Contractor and the Surety from obligations under the Contract and the Performance Bond, Payment Bond, and other bonds and warranties as herein provided.

SECTION 10 – MISCELLANEOUS

10-1 NOTICE OF THIRD PARTY CLAIMS. Pursuant to Public Contract Code section 9201, the Agency shall provide Contractor with timely notification of the receipt of any third-party claim relating to the Contract.

10-2 STATE LICENSE BOARD NOTICE. Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four (4) years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within ten (10) years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

10-3 INTEGRATION

1. These Contract Documents, together with its incorporated documents, contains the entire, integrated agreement of the parties hereto, and supersedes any and all other prior or contemporaneous negotiations, understandings and oral or written agreements between the parties hereto. Each party acknowledges that no representations, inducements, promises or agreements have been made by any person which are not incorporated herein, and that any other agreements shall be void.

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2. Any modification of this Contract shall only be effective if in writing signed by all parties.
3. No oral order, objection, direction, claim or notice by any party or person shall affect or modify any of the terms or obligations contained in the Contract Documents.

END OF PART ONE

PART TWO - TECHNICAL SPECIFICATIONS

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

All applicable portions of Division 1, including the drawings and general provisions of the contract, the general and supplementary conditions and Division 1 specification sections which apply to work of this section as if printed herein.

1.01 DESCRIPTION

A. Section Includes:

1. Description of the Work (refer to 1.03).
2. Duties of the Contractor (refer to 1.04).
3. Permits and fees (refer to 1.06).
4. Layout of work (refer to 1.07).

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The scope of this project includes, but is not limited to: New swimming pool design per plan. New plaster and ceramic tile at swimming pool and activity pool. New swimming pool concrete and anchorage to match existing slopes to perimeter drains. Provide new deck drainage piping to existing point of connection. Remove and replace existing perimeter fence with new, per plans. Replace mechanical room equipment per plan. All other items as required to provide a completely operational aquatic facility. Project is located at 1800 E. 22nd Street, National City, CA 91950.

B. Work of this contract generally consists of demolition, preparation and new construction and such other items not mentioned that are required by the Contract Documents, law and governmental codes and regulations.

C. For convenience, the Specifications are divided into sections as set forth in the Table of Contents, but such segregation shall not be considered as limiting the work of any subcontract or trade, and the Owner will not be responsible for any division of work by subcontracts. Unless otherwise provided, the Contractor shall be solely responsible for all subcontract arrangements of work regardless of the locations of provisions in the Specifications.

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D. Compensation for bid items not specifically identified in these Special Provisions shall include all labor, materials, tools, equipment, safety measures, and supervision required to complete the work to grades and dimensions shown on the plans or staked in the field. There shall be no compensation except for bid items specified in the Bidder's Proposal. The cost of all work in the Contract Documents not specifically identified as a bid item or described within a bid item shall be included in related bid items, and no additional compensation shall become due the Contractor by nature of compliance with the Contract Documents except as provided for in the General Conditions of the Contract for Construction, under "Changes in the Work."

1.03 CONTRACTOR DUTIES

- A. Construct the work under a single prime contract in strict conformity with the Contract Documents.
- B. Accept the site and the character of the work as they exist on the first day of work under this Contract.
- C. Coordinate work of employees and subcontractors.
- D. Expedite the work to assure compliance with schedules.
- E. Coordinate the work with that of other contractors and work done by the Owner.
- F. Comply with orders and instructions of the Owner's Representative.

1.04 CONTRACTOR FURNISHED PRODUCTS

- A. Contractor Responsibilities:
 - 1. Designate needed submittals and delivery date for each product in progress schedule. Coordinate deliveries with Owner's Representative.
 - 2. Receive product(s) at site. Store until incorporated into the work.
- 3. Inspect deliveries jointly with Owner's Representative, record shortages and damaged or defective items.
 - 4. Protect product(s) from damage, theft and from exposure to the elements.
 - 5. Assemble, install, connect, adjust and/or finish product(s) as required under provisions of the Contract Documents.
 - 6. Repair or replace products damaged or stolen subsequent to receipt, at no cost to the Owner.

1.05 PERMITS AND FEES

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- A. The Contractor shall obtain and pay for all permits, fees and licenses required by all government agencies and necessary for successful completion of the work. The Contractor shall maintain copies of all required permits on site and shall, upon request, furnish the Owner with copies thereof.

1.06 LAYOUT OF WORK

- A. Field surveys for control of all grading and construction shall be the responsibility of the Contractor. All such surveys, including construction staking, shall be under the supervision of a California licensed surveyor or civil engineer. Staking shall be performed on all items ordinarily requiring grade and alignment at intervals normally accepted by the agencies and trades involved. Payment for construction survey staking shall be considered as included in the various items of work and no additional allowance will be made thereof. Bench marks shall be provided by the Owner as shown on Drawings.

PART 2 - PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

All applicable portions of Division 1, including the drawings and general provisions of the contract, the general and supplementary conditions and Division 1 specification sections which apply to work of this section as if printed herein.

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- A. Section Includes:

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2. Duties of the Contractor (refer to 1.04).
3. Permits and fees (refer to 1.06).
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1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The scope of this project includes, but is not limited to: New swimming pool design per plan. New plaster and ceramic tile at swimming pool and activity pool. New swimming pool concrete and anchorage to match existing slopes to perimeter drains. Provide new deck drainage piping to existing point of connection. Remove and replace existing perimeter fence with new, per plans. Replace mechanical room equipment per plan. All other items as required to provide a completely operational aquatic facility. Project is located at 1800 E. 22nd Street, National City, CA 91950.

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D. Compensation for bid items not specifically identified in these Special Provisions shall include all labor, materials, tools, equipment, safety measures, and supervision required to complete the work to grades and dimensions shown on the plans or staked in the field. There shall be no compensation except for bid items specified in the Bidder's Proposal. The cost of all work in the Contract Documents not specifically identified as a bid item or described within a bid item shall be included in related bid items, and no additional compensation shall become due the Contractor by nature of compliance with the Contract Documents except as provided for in the General Conditions of the Contract for Construction, under "Changes in the Work."

1.03 CONTRACTOR DUTIES

- A. Construct the work under a single prime contract in strict conformity with the Contract Documents.
- B. Accept the site and the character of the work as they exist on the first day of work under this Contract.

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- C. Coordinate work of employees and subcontractors.
- D. Expedite the work to assure compliance with schedules.
- E. Coordinate the work with that of other contractors and work done by the Owner.
- F. Comply with orders and instructions of the Owner's Representative.

1.04 CONTRACTOR FURNISHED PRODUCTS

- A. Contractor Responsibilities:
 - 1. Designate needed submittals and delivery date for each product in progress schedule. Coordinate deliveries with Owner's Representative.
 - 2. Receive product(s) at site. Store until incorporated into the work.
- 3. Inspect deliveries jointly with Owner's Representative, record shortages and damaged or defective items.
 - 4. Protect product(s) from damage, theft and from exposure to the elements.
 - 5. Assemble, install, connect, adjust and/or finish product(s) as required under provisions of the Contract Documents.
 - 6. Repair or replace products damaged or stolen subsequent to receipt, at no cost to the Owner.

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- A. The Contractor shall obtain and pay for all permits, fees and licenses required by all government agencies and necessary for successful completion of the work. The Contractor shall maintain copies of all required permits on site and shall, upon request, furnish the Owner with copies thereof.

1.06 LAYOUT OF WORK

- A. Field surveys for control of all grading and construction shall be the responsibility of the Contractor. All such surveys, including construction staking, shall be under the supervision of a California licensed surveyor or civil engineer. Staking shall be performed on all items ordinarily requiring grade and alignment at intervals normally accepted by the agencies and trades involved. Payment for construction survey staking shall be considered as included in the various items of work and no additional allowance will be made thereof. Bench marks shall be provided by the Owner as shown on Drawings.

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PART 2 - PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

All applicable portions of Division 1, including the drawings and general provisions of the contract, the general and supplementary conditions and Division 1 specification sections which apply to work of this section as if printed herein.

1.01 DESCRIPTION

A. Section Includes:

1. Submit to the Engineer shop drawings, product data and samples required under the various Sections of these Specifications.
2. Prepare and submit with Construction Schedule, a separate schedule listing dates for submission and dates reviewed shop drawings, product data and samples will be needed for each product.

1.02 PRODUCT HANDLING

- A. Make all submittals of Shop Drawings, Samples, and requests for substitution in accordance with the provisions of these Specifications.

PART 2 - PRODUCTS

2.01 SCHEDULE OF SUBMITTALS

- A. Compile a complete schedule of all submittals required for the project, complete with major division and subdivision headings and broken into individual trades. Format shall be 8-1/2" x 11". The schedule shall be in such a form as to allow for notations next to each required

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submittal including, but not necessarily limited to, submission dates, action taken, approvals and re-submittals. Submit such a schedule to the Engineer for his comments and approval. The approved Schedule of Submittals shall be kept current at all times and an updated copy shall be kept in the Project Field Office for review.

2.02 SHOP DRAWINGS AND PRODUCT INFORMATION SUBMITTALS

- A. Unless otherwise specifically directed by the Engineer, make all Shop Drawings accurately to a scale sufficiently large to show all pertinent features of the item and its' method of connection and interface to the Work.
- B. Submit all Shop Drawings in the form of four (4) blueline prints of each Shop Drawing. In the case of Product Information, submit no less than four (4) copies for review. Where contents of submitted product information include data not pertinent to the submittal, clearly indicate which portion is being submitted for review.
- C. Submittals are required on all items to ensure the latest and most complete manufacturer's data is available. The Contractor assumes full responsibility for problems which could have been noted on valid submittals not furnished.
- D. In the event that an item or items specified by the Engineer will not be available in time for installation during orderly progress of the Work, so notify the Engineer prior to receipt of bids. Verify that all items specified will be available. Costs of delays because of non-availability of materials will be back-charged as necessary and shall not be borne by the Owner.
- E. Of the four (4) bluelines required; two bluelines will be returned to the Contractor upon completion of the Engineer's review, one will be sent to the Owner and the other will be kept on file in the Engineer's office.

2.03 SAMPLES

- A. Unless otherwise specifically directed by the Engineer, all Samples shall be of the precise article proposed to be furnished.
- B. Submit all Samples in the quantity which is required to be returned, plus one (1) which will be retained by the Engineer.

2.04 CALCULATIONS

- A. Where required, the Contractor shall retain a licensed Civil or Structural Engineer to provide structural calculations sufficient to show the adequacy of all members and connections to be reviewed.

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2.05 COLORS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product submit accurate color charts and pattern charts to the Engineer for his review and selection.
- B. Unless all available colors and patterns have identical costs and identical wearing capabilities and are identically suitable for the installation, completely describe the relative costs and capabilities of each.

2.06 MANUALS

- A. Where manuals are required to be submitted upon completion of the installation, prepare all such manuals in durable plastic binders approximately 8-1/2" x 11" in size and with at least the following features:
 - 1. Identification readable through the outside of the cover, stating the general nature of the manual and the project to which it pertains.
 - 2. Neatly typewritten Index near the front of the manual, furnishing immediate information as to location in the manual of all data regarding the installation.
 - 3. Complete instruction regarding operation and maintenance of all equipment involved.
 - 4. Complete nomenclature of all replaceable parts, their part numbers, current cost and name and address of the Vendors of the parts.
 - 5. Copy of all guarantees and warranties issued on the installation.
 - 6. Copy of the approved Shop Drawings with all data concerning changes made during construction.
- B. Where contents of manuals include manufacturer's catalog, clearly indicate the precise items included in this installation and delete, or otherwise clearly indicate, all manufacturer's data with which this installation is not concerned.
- C. Unless otherwise specifically directed by the Engineer, deliver two (2) copies of the manual to the Owner and one (1) copy to the Engineer.

2.07 RECORD DRAWINGS

- A. Where required by the Contract Documents or where changes to the Contract Documents have been made by change order, revision to clarification drawings, or where minor changes to the Contract were required because of unforeseen conditions or as may be required by the Engineer, prepare accurate Record Drawings indicating all pertinent data and dimensions necessary to adequately describe the contract deviations to the Owner for his future use.

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2.08 SUBSTITUTIONS

- A. Reference in the Contract Documents to any material, product, or process by name, make or catalog number shall be interpreted as establishing a standard of quality and design intent and not construed as prohibiting substitutions of any other such material, product, or process, provided such substitution is specifically approved by the Engineer prior to receipt of bids. Requests for substitutions shall be submitted no later than ten (10) working days prior to bid date.
- B. Acceptance of substitutions will not relieve the Contractor from responsibility for complying with the Contract Documents.
- C. At the discretion of the Engineer, testing of samples of materials proposed for substitutions may be required. The testing shall be done by an independent testing laboratory selected by the Owner, the costs of which shall be borne by the Contractor.
- D. At the discretion of the Engineer, the Contractor may be required to furnish a written guarantee, in addition to that already required, ensuring the satisfactory performance of the proposed substitutes.
- E. All additional labor and materials which may be required for the proper installation of any substitution, or required as a consequence of any substitution, will be provided at no additional cost to the Owner.
- F. Bids shall be based upon the data given in the Contract Documents, or upon previously approved items or techniques as "approved equals" by the Engineer. Where calculations or shop drawings are required for approval, allowance shall be made for meeting the requirements of the Contract Documents and all applicable codes and ordinances.
- G. Bidders may, in addition, submit separate bids using materials and equipment of other manufacturers, providing the difference in cost is stated for each item proposed to be substituted.
- H. Provide to the Engineer all information necessary and required to evaluate proposed substitutions. Do not base bid on the assumptions that a material will be approved as equal by the Engineer unless the item has been specifically approved for this Work by the Engineer prior to the receipt of bids.
- I. The Contractor assumes full responsibility that substituted items or procedures will meet the job requirements and is responsible for the cost of redesign and of modifications to this and all other parts of the work caused by substituted items.

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- J. Submittals will be checked for general conformance with the design concept of the project, but acceptance does not guarantee quantities shown and does not supersede requirements to properly install work. Submittals for proposed alternatives will be judged not only for the acceptability of the items themselves, but of the items as they are used under the conditions of this particular project.

PART 3 - EXECUTION

3.01 IDENTIFICATION OF SUBMITTALS OR SUBSTITUTIONS

- A. Completely identify each submittal and re-submittal by showing at least the following information:
 - 1. Name and address of entity submitting information, plus name and telephone number of individual who may be contacted for further information.
 - 2. Name of project for this Work.
 - 3. Drawing number and Specification Section number to which the submittal applies.
 - 4. Number of all submittals sequentially, whether this is an original submittal or a re-submittal, and if a re-submittal, what number re-submittal.

3.02 COORDINATION

- A. Prior to submittal for Engineer's review:
 - 1. Fully coordinate all submittals by determining and verifying all field dimensions and conditions, materials, catalog numbers, and similar data.
 - 2. Coordinate as required with all other trades and with all public agencies involved.
 - 3. Secure all necessary prior approvals and signify by stamp, or other means, that they have been secured.
 - 4. Clearly indicate all deviations from Contract Documents.

3.03 TIMING OF SUBMITTALS

- A. Make all submittals within ten (10) days of the date of the award of the contract for the Work, and far enough in advance of scheduled dates of installation to provide adequate time for all required reviews, both by the Engineer and his consultants, for securing necessary approvals, for possible revision and re-submittal, and for placing of orders and securing delivery. In scheduling, allow a minimum of twenty (20) full working days for the Engineer's review. Cost of delays occasioned by the tardiness of submittals will be back-charged as necessary.

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3.04 ENGINEER'S REVIEW

- A. The Engineer's review will be only for conformance with the design concept and with the information given in the Contract Documents. The Engineer's review and approval of Shop Drawings and Samples shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents unless the Contractor has informed the Engineer in writing of such deviation at the time of submittal and the Engineer has given written approval to the specific deviation, nor shall the Engineer's approval relieve the Contractor from responsibility for errors and omissions in the Shop Drawings and Samples. Should the Engineer be required to review any submittal more than three (3) separate times due to the inadequacy of the submittal and due to no fault of the Engineer, the Contractor shall render to the Engineer the Engineer's direct cost for review of all subsequent re-submittals.

3.05 COMPLIANCE WITH APPROVALS

- A. Do not commence any portion of the Work requiring approval of Shop Drawings or Samples by the Engineer until the submittal has been approved by the Engineer. All such portions of the Work shall be in accordance with the approved Shop Drawings and Samples.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

All applicable portions of Division 1, including the drawings and general provisions of the contract, the general and supplementary conditions and Division 1 specification sections which apply to work of this section as if printed herein.

1.01 DESCRIPTION

- A. Section Includes: Temporary facilities and controls required for this work include, but are not limited to: temporary utilities such as water, electricity and telephone; field offices and sheds; haul roads; enclosures such as fences, barricades, and canopies; sanitary facilities; scaffolding and safety equipment. All such temporary facilities shall be located for convenience and safety and maintained in a safe and sanitary condition at all times until completion of the Contract, then removed from the site and disposed of as required or as directed.

1.02 COMPLIANCE WITH CODES AND REGULATIONS

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- A. Compliance with all requirements of pertinent safety regulations is described in the General Conditions of the Contract for Construction and shall include, but not necessarily be limited to: Federal Occupational Health Administration (OSHA) and latest edition, Uniform Building Code (with California Amendments) and ADA (American Disability Act).

1.03 PRODUCT HANDLING

- A. Use all means necessary to maintain all temporary facilities and controls in proper and safe condition throughout progress of the work. In the event of damage or loss, immediately make all repairs and replacements necessary and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 TEMPORARY UTILITIES

- A. General:
 - 1. Provide and pay all costs for all utilities required for performance of the work.
 - 2. Provide safe distribution of required utilities to the job areas for use of all trades.
- B. Temporary Water: Furnish and install all necessary temporary piping and, upon completion of the work, remove all such temporary piping.
- C. Temporary Electricity: Furnish and install all necessary temporary wiring; furnish and install distribution boxes within 100 feet of each portion of the work so located that the individual trades may use their own construction-type extension cords to obtain adequate power and lighting at all points where required by inspectors and for safety.
- D. Telephone: Maintain in the Contractor's field office or in a protected location on the job site for the use of the subcontractors; the telephone may be coin operated.

2.02 ACCESS FACILITIES

- A. The Contractor shall provide access facilities to the construction area as are necessary and required for carrying out the work and the same shall be kept passable at all times. Contractor shall be responsible for any damage to streets, curbs and sidewalks due to the use of such facilities, and such damaged portions shall be repaired as required to place them in the same condition as existed prior to the commencement of the work. Contractors shall comply in every respect with applicable Building Codes regarding the use of public streets and sidewalks and provide the proper barricading and lighting of public thoroughfares surrounding the construction activities.

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2.03 ENCLOSURES, FENCES, BARRICADES AND CANOPIES

- A. Furnish, install, and maintain for the duration of construction, all required scaffolds, fences, barricades, canopies, warning signs, steps, bridges, platforms and other temporary construction necessary for proper completion of the work in compliance with all pertinent safety regulations. In addition, it is recommended that all existing improvements which are not to be altered or removed be protected by means of temporary barricades or other suitable means.

2.04 PUMPING

- A. Keep the site, excavations, and structures free of accumulation of water at all times, whether from underground seepage, rainfall, drainage, or broken utility lines.

2.05 SANITARY FACILITIES

- A. Furnish and install all required temporary toilet buildings with sanitary toilets for use of all workmen. Comply with all minimum requirements of the Health Department or other public agency having jurisdiction. Maintain in a sanitary condition at all times.

2.06 FIRE PROTECTION

- A. Temporary fire extinguishers shall be provided and available at the job site in accordance with the appropriate NFPA Bulletins and good practice.

PART 3 - EXECUTION

3.01 SPECIAL CONDITIONS OF THE SITE

- A. The area to be set aside for the use of the Contractor is indicated on the Drawings as "Limit of Work." Except for sub-surface utility work, curb and gutter, temporary roads and any other work specifically shown or noted, the Contractor shall confine his exterior operations within the limits-of-work so indicated.
- B. Work shall not proceed for the site or buildings until all temporary work such as utilities, barricades, field office and sanitary facilities are furnished and installed.
- C. Parking of vehicles by construction personnel shall be limited to areas outside the limits-of-work in locations as designated by the Owner's Representative.

3.02 MATERIAL STORAGE AND PROTECTION

- A. During the progress of the work, products and materials shall be neatly stored in accordance with the appropriate manufacturer's recommendations and shall be

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properly cared for and protected from weather, vandalism and theft.

- B. All installed products and materials shall be adequately protected until such time as the Owner accepts the Project.

3.03 CONDITIONS AT THE SITE

- A. The Contractor shall make all necessary inspections of the job site and of the work to be fully aware of the conditions of all temporary facilities and controls at all times.
- B. The Contractor shall take all steps necessary to prohibit any part of the premises, the buildings, or structures to be overloaded by setting thereon any material or equipment, or performing thereon any of his work, which could cause any loss, damage, and/or injury to person or property.
- C. The Contractor shall make a close inspection of all materials as delivered and shall promptly return all defective materials without waiting for their rejection by the Engineer.

3.04 REMOVAL

- A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the work. Remove all such temporary facilities and controls as rapidly as progress of the work will permit, or as directed by the Engineer.

3.05 RESTORATION OF AREAS

- A. Upon completion of the project, all temporary facilities shall be removed from the site and all areas not otherwise improved but which were adversely affected by the Contractor's work shall be returned to their original condition to the satisfaction of the Engineer.

3.06 FINAL SITE CLEAN-UP

- A. Prior to final inspection, thoroughly clean the entire site and restore to a neat, acceptable condition. Remove from the entire site all construction waste and unused materials, dunnage, loose rock and stones, excess earth, roots, weeds, and all debris of any description resulting from the work. Hose down and scrub where necessary all new concrete and asphalt pavement and paved walks, and all existing concrete and asphalt pavement and walks dirtied as a result of the work. Thoroughly remove mortar drippings from concrete walks and other pavements, where they occur.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

All applicable portions of Division 1, including the drawings and general provisions of the contract, the general and supplementary conditions and Division 1 specification sections which apply to work of this section as if printed herein.

1.01 DESCRIPTION

- A. Section Includes: The work includes, but is not necessarily limited to, performing all operations necessary for and properly incidental to closing out the project and assisting in Owner's final inspection as hereinafter specified.

1.02 FINAL COMPLETION

- A. When the Contractor considers the work, or a designated portion of the work complete, submit written request to Owner's Representative for inspection. By submittal of request, Contractor certifies that:
1. Contract Documents have been reviewed.
 2. Work has been completed in accordance with the Contract Documents and is ready for inspection.
 3. Equipment systems have been tested, adjusted, balanced and are fully operational.
- B. Submit request a minimum of five (5) working days in advance of requested inspection date. Contractor shall be responsible for allowing sufficient time during contract period to complete inspections and any corrections.
- C. Should Owner's Representative inspection find work incomplete, Owner's Representative will notify Contractor in writing, listing observed deficiencies.
- D. Contractor shall remedy listed deficiencies and send a request for final inspection. At the Owner's option, a reinspection(s) of the work to identify additional deficiencies, if any, may be required. Owner's costs associated with reinspection(s) are subject to provisions of Article 1.04 of this Section.

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- E. When Owner confirms work is complete, and close-out submittals as referred to in Article 1.05 of this Section are provided, Owner's Representative will notify Contractor of date of completion in writing.

1.03 REINSPECTIONS

- A. Should status of completion of work require reinspection(s) by Owner due to failure of work to comply with Contractor's claims on initial inspection, Owner may deduct the amount of compensation for reinspection services from final payment to Contractor. Observed deficiencies in excess of ten (10) will be reason for reinspection.
- B. Inspections initiated at the request of the Owner will not be subject to the provisions of this Article.

1.04 CLOSE-OUT SUBMITTALS

- A. Project Record Documents
- B. Operation and Maintenance Data
- C. Warranties and Guarantees
- D. Spare Parts and Maintenance Materials
- E. Evidence of Payment and Lien Releases along with a list of all subcontractors which contributed labor or materials to the project.
- F. Other data and materials as may be required in individual Sections of the Specifications.

1.05 APPLICATION FOR FINAL PAYMENT

- A. Submit application for final payment in accordance with provisions of the Contract for Construction.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 02 05 00

DEMOLITION

PART 1 - GENERAL

All applicable portions of Division 1, including the drawings and general provisions of the contract, the general and supplementary conditions and Division 1 specification sections which apply to work of this section as if printed herein.

1.01 DESCRIPTION

A. Section Includes:

1. The scope of this project includes, but is not limited to: Removal of existing decking and sloping new decks to existing drainage locations.

- B. Site Visitation: In preparing a proposal, visit the site, carefully examine the Drawings and Specifications, and determine that the work can be properly executed in accordance with the Contract Documents. No allowance will be made for any error through negligence in observing the site conditions.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 TREATMENT OF EXISTING FACILITIES

- A. Protection: Use necessary procedures, caution and covering to protect from damage existing facilities, equipment and accessories not noted to be replaced or restored. Maintain active utilities traversing the project site in operating condition.
- B. Replacement: In the event of damage, immediately notify the Owner, and make all repairs and replacements necessary to the approval of the Engineer without change in contract amount or time.

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3.02 REMOVAL OF DEBRIS

- A. All items noted for demolition shall be immediately removed from the project site and hauled and dumped in compliance with all local codes and regulations, including payment of any associated fees.

3.03 SAFETY BARRICADES

- A. Provide substantial barricades around and at all areas and openings as soon as such areas and openings are created. Barricades must be adequate to block access and give warning to the general public.

3.04 CLEAN-UP

- A. Upon completion of the work of this Section, immediately remove all broken concrete, debris and rubbish occasioned by this work to the approval of the Engineer.

END OF SECTION

SECTION 02 83 20

METAL FENCES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The contractor shall provide all labor, materials and appurtenances necessary for installation of the steel fence and gate system defined herein.
- B. Section 131102- Concrete

1.02 SYSTEM DESCRIPTION

- A. The manufacturer shall supply a fence and gate system of Ameristar® PassPort® II Ornamental design series and Majestic, or Invincible style or approved equal. The system shall include all components (i.e., pickets, rails, gate uprights, wheels and hardware) required.

1.03 QUALITY ASSURANCE

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- A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.04 REFERENCES

- ASTM D653/ASTM653M – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process.
- ASTM B117 – Practice for Operating Salt Spray (Fog) Apparatus.
- ASTM D714 – Test Method for Evaluating Blistering in Paint.
- ASTM D523 - Test Method for Specular Glass.
- ASTM D822 – Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculations of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to The Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

1.05 SUBMITTAL

- A. The manufacturer's submittal package consisting of gate elevations, hardware details, and installation details, shall be submitted prior to installation.

1.06 PRODUCT HANDLING AND STORAGE

- A. Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage and to protect against damage, weather, vandalism and theft.

PART 2 – MATERIALS

2.01 MANUFACTURER

- A. The steel fence and gate system shall conform to Ameristar® PassPort® II Ornamental design series and style and frame configuration manufactured by Ameristar Fence Products, Inc. in Tulsa, Oklahoma, or approved equal.

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2.02 MATERIAL

- A. Steel material for fencing and gates (i.e. pickets, rails, diagonals and uprights), shall be industrial steel with a minimum yield strength of 45,000 psi (344 MPa). Steel material for fence framework (i.e. tubular pickets, rails and posts), shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft² (276 g/m²), Coating Designation G-90.
- B. Ornamental picket material shall be 1" square x 14 Ga. tubing for PassPort® II Ornamental gate pickets. Picket spacing shall be 4-3/4" for PassPort® II Ornamental gate pickets. Material for top rails, uprights and diagonals rails shall be 2" square x 11 Ga. Material for the bottom rail shall be 2" x 4" x 11 Ga. Posts shall be 4" square x 11 Ga. Material for pickets shall be 1" square x 14 Ga. tubing. The cross-sectional shape of the rails shall conform to the manufacturer's ForeRunner double wall design with outside cross-section dimensions of 1.75" square and a minimum thickness of 14 Ga. Picket holes in the ForeRunner rail shall be spaced 4.715" o.c., except for Invincible style 6' long, which shall be, spaced 4.98" o.c. Picket retaining rods shall be 0.125" diameter galvanized steel. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

2.03 FABRICATION

- A. Pickets, rails, uprights and posts shall be pre-cut to specified lengths. Diagonals shall be pre-cut to specified lengths and angles. Frame materials shall be joined by welding. Pickets shall be face welded to roll gate frame, except for Invincible style gates over 18' long. Invincible style gates over 18' long shall have pickets face-welded to 2" x 2" angle iron to form panels equal in length to the gate frame bay width. ForeRunner rails shall be prepunched to accept pickets. Pickets shall be predrilled to accept retaining rods.
- B. The manufactured fence and gates and bolt-on panels (if applicable) shall be subjected to the PermaCoat® thermal stratification coating process (high temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pre-treatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be (specify

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Black, Bronze, White, or Desert Sand). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2. Grommets shall be inserted into the prepunched holes in the rails and pickets shall be inserted through the grommets so that predrilled picket holes align with the internal upper raceway of the ForeRunner rails (Note: This can best be accomplished by making an alignment jig). Retaining rods shall be inserted into each ForeRunner rail so that they pass through the predrilled holes in each picket.

- C. The manufactured galvanized framework shall be subjected to the PermaCoat® thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a “no-mar” TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be Black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.
- D. Completed gates shall be capable of supporting a 200 lb. load applied at midspan without permanent deformation. Completed sections (i.e., panels) shall be capable of supporting a 600 lb. load applied at midspan without permanent deformation. Panels shall be biasable to a 25% change in grade
- E. Swing gates shall be fabricated using 1.75” x 14ga Forerunner double channel rail, 1.75” sq. x 14ga. gate ends, and 1” sq. x 14ga. pickets. Gates that exceed 6’ in width will have a 1.75” sq. x 14ga. intermediate upright. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding

PART 3 – EXECUTION

3.01 PREPARATION

- A. All new gate installations shall be laid out by the contractor in accordance with the construction plans.
- B. All hardware shall be installed in accordance with the Passport installation instructions. Passport roll gates shall be installed so they comply with current ASTM F2200 & UL325 standards, or approved equal.
- C. Gate stops shall be installed on each track in a way that conforms to current ASTM F2200 standards.

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3.02 INSTALLATION

- A. Gate posts shall be set in accordance with the spacings shown in the construction plans. Fence post shall be spaced according to Table 3, plus or minus $\frac{1}{2}$ ". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements. 6" wheels shall be bolted to the gate between the wheel plates welded near the ends of the gate bottom rail. The gate shall be set upright with the V-grooved wheels positioned over the pre-installed steel V-track that traverses the gate opening. Roller guides shall be affixed to the gate posts at a height even with the gate top rail to hold the gate in a vertical position. Gate stops shall be welded to the end of the gate or track so gate cannot pass rollers in either direction.

3.03 FENCE INSTALLATION MAINTENANCE

- A. When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.04 GATE INSTALLATION

- A. Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.05 CLEANING

- A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

END OF SECTION

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Table 1 – Minimum Sizes for Aegis II Posts				
<u>Fence Posts</u>	<u>Panel Height</u>			
2-1/2" x 12 Ga.	Up to & Including 6' Height			
3" x 12 Ga.	Over 6' Up to & Including 10' Height			
4" x 11 Ga.	Over 10' Height			
<u>Gate Leaf</u>	<u>Gate Height</u>			
	<u>Up to & Including 6'</u>	<u>Over 6' Up to & Including 8'</u>	<u>Over 8' Up to & Including 10'</u>	<u>Over 12'</u>
Up to 4'	3" x 12Ga.	3" x 12 Ga.	4" x 11 Ga.	4" x 11 Ga.
4'1" to 6'	3" x 12Ga.	3" x 12 Ga.	4" x 11 Ga.	4" x 11 Ga.
6'1" to 8'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"	6" x 3/16"
8'1" to 10'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"	6" x 3/16"
10'1" to 12'	6" x 3/16"	6" x 3/16"	6" x 3/16"	8" x 1/4"
12'1" to 16'	6" x 3/16"	6" x 3/16"	8" x 1/4"	8" x 1/4"

Table 2 – Coating Performance Requirements		
Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

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Table 3 – Aegis II – Post Spacing By Bracket Type								
Span	For INVINCIBLE® 8' Nominal (91.25" Rail)		For CLASSIC, GENESIS, & MAJESTIC 8' Nominal (92.625" Rail)					
Post Size	2-1/2"	3"	2-1/2"	3"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Industrial Flat Mount (BB301)		Industrial Universal (BB302)	Industrial Universal (BB303)	Industrial Flat Mount (BB301)		Industrial Swivel (BB304)*	
Post Settings ± ½" O.C.	94-1/2"	95"	96"	96.5"	96"	96-1/2"	*96"	*96-1/2"
Span	For INVINCIBLE® 6' Nominal (67.75" Rail)		For CLASSIC, GENESIS, & MAJESTIC 6' Nominal (71.375" Rail)					
Post Size	2-1/2"	3"	2-1/2"	3"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Industrial Flat Mount (BB301)		Industrial Universal (BB302)	Industrial Universal (BB303)	Industrial Flat Mount (BB301)		Industrial Swivel (BB304)*	
Post Settings ± ½" O.C.	75"	75.5"	71.5"	72"	71.5"	72"	*73"	*73.5"
*Note: When using BB304 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.								

SECTION 13 11 00**SWIMMING POOL GENERAL REQUIREMENTS****PART 1 - GENERAL****1.01 WORK INCLUDED**

- A. The scope of the work included under this Section of the Specifications shall include swimming pool(s) as illustrated on the Drawings and specified herein. The General and Supplementary Conditions of the Specifications shall form a part and be included under this Section of the Specifications. The Swimming Pool Subcontractor shall provide all supervision, labor, material, equipment, machinery, plant and any and all other items necessary to complete the work. **ALL OF THE WORK IN SECTIONS 13 11**

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00 - 13 11 08 IS TO BE THE RESPONSIBILITY OF ONE EXPERIENCED SWIMMING POOL CONTRACTOR OR SUBCONTRACTOR PRIMARILY ENGAGED IN THE CONSTRUCTION OF COMMERCIAL PUBLIC-USE SWIMMING POOLS. A SWIMMING POOL CONTRACTOR OR SUBCONTRACTOR SHALL BE CONSIDERED PRIMARILY ENGAGED AS REQUIRED HEREIN IF THE SUBCONTRACTOR DERIVED 50% OF ITS ANNUAL REVENUE FROM PUBLIC-USE SWIMMING POOL CONSTRUCTION FOR EACH OF THE LAST FIVE YEARS. THE SUBCONTRACTOR MUST HAVE ALSO, IN THE LAST FIVE YEARS CONSTRUCTED OR RECONSTRUCTED AT LEAST FIVE (5) COMMERCIALY DESIGNED MUNICIPAL OR PUBLIC-USE SWIMMING POOLS, EACH OF WHICH SHALL HAVE INCORPORATED A MINIMUM SIZE OF 6,000 SQUARE FEET OF WATER SURFACE AREA WITH A CONCRETE AND CERAMIC TILE PERIMETER OVERFLOW GUTTER AND SELF-MODULATING BALANCE TANK. The Swimming Pool Contractor or Subcontractor shall furnish and install the swimming pool structures, finishes, cantilever forming, swimming pool mechanical and electrical systems, and all accessories necessary for a complete, functional swimming pool system, as herein described. Work shall include start-up, instruction of Owner's personnel, as-built drawings and warranties as required.

1.02 CODES, RULES, PERMITS, FEES

- A. The swimming pools shall be constructed in strict accordance with the applicable provisions set forth by authorities having jurisdiction over swimming pool construction and operation in the State of California.
- B. The Swimming Pool Subcontractor shall give all necessary notices, obtain all permits, and pay all government sales taxes, fees, and other costs in connection with their work; file all necessary plans, prepare all documents and obtain all necessary approvals of governmental departments having jurisdiction; obtain all required certificates of inspection for their work and deliver same to the Designated Representative before request for acceptance and final payment for the work.
- C. The Swimming Pool Subcontractor shall include in the work any labor, materials, services, apparatus, or drawings in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on Drawings and/or specified.
- D. The Contractor shall submit all required documents and materials to all Governmental Departments having jurisdiction for any deferred approval items or substituted materials or products to obtain final approval to installation.

1.03 DESCRIPTION OF WORK

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- A. Furnish and perform supervision, coordination, all layout, formwork, excavation, hand trim, disposing off-site of all unused material or debris to complete the swimming pool excavation to the dimensions shown on the plans.
- B. Furnish and install complete swimming pool structures, including reinforcing steel and cast-in-place or pneumatically placed concrete walls and floors.
- C. Furnish and install swimming pool finishes, including ceramic tile and marble plaster or other waterproof finishes.
- D. Furnish and install complete swimming pool mechanical system(s), including, but not limited to, circulation systems, filtration systems, pool water heating systems, water chemistry control systems, domestic water fill line systems, booster pump and special effects systems, and all pumps, piping, valves, and connections between system(s) and swimming pool(s).
- E. Furnish and install complete swimming pool electrical system(s) from P.O.C. in Mechanical Room, including, but not limited to, underwater lighting systems, water level control systems, timing systems, scoreboards, special effects systems, control circuitry, motor starters, time clocks, bonding, and all conduits, conductors, contactors, and switches between the system(s) and swimming pool(s).
- F. Furnish and install all swimming pool cantilever forming, deck equipment and required anchors and inserts for the specified equipment as required by code, shown on the Drawings and specified herein.
- G. After the initial filling of the swimming pool system(s), should any repairs, continuing work, or other Subcontractor responsibility require drainage or partial drainage of the swimming pool systems, the Swimming Pool Subcontractor shall be responsible for any subsequent refilling and shall complete the project with the swimming pool system(s) full of water, water in chemical balance, complete in every way, and in full operation.

1.04 ASSIGNED RESPONSIBILITIES AND RELATED WORK

- A. It is the intent of this section of the Specifications to clarify Work responsibilities of the trades directly and indirectly involved in construction of the pool systems. All labor, equipment, materials and supplies furnished by the Swimming Pool Subcontractor and other Subcontractors per the contractual agreement with the General Contractor and Owner and shall be as directed by the Owner through their Designated Representative.
- B. **THE SWIMMING POOL SUBCONTRACTOR SHALL NOT SUBCONTRACT ANY PORTION OF THE SWIMMING POOL CONSTRUCTION OR SWIMMING POOL EQUIPMENT**

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INSTALLATION TO ANYONE OTHER THAN A SUBCONTRACTOR THAT SATISFIES THE REQUIREMENTS OF SECTION 13 11 00

- C. References to “swimming pool systems” shall include the swimming pools, equipment, and accessories.
- D. The Owner will provide one complete water filling of the swimming pool(s), but will not assume any responsibility for the swimming pool system(s) until they have been proved fully operational, complete in every way and accepted by the Designated Representative.

1.05 RESPONSIBILITIES OF THE CONTRACTOR

- A. The Contractor shall grade the swimming pool site(s), establish benchmarks, cut and fill as necessary to provide as level an area as possible at swimming pool deck elevation before swimming pool layout.
- B. The Contractor shall be responsible for horizontal dimensions and grade elevations accurately from established lines and benchmarks (as indicated on the Drawings) and be responsible for those grades.
- C. The Contractor shall provide adequate temporary light, electric power, heat and ventilation per Federal and State OSHA requirements to construct the swimming pool system(s).
- D. The Contractor shall not permit any heavy equipment activity over any area or within five (5) feet of any area under which swimming pool piping is buried. There shall be no exceptions to this requirement.
- E. The Contractor shall keep the swimming pool excavation(s) and swimming pool structure(s) free of construction residue and waste materials of their workmen or Subcontractors, removing said material from the swimming pools as required.
- F. The Contractor shall protect the swimming pool(s) from damage caused by their construction equipment and /or workmen and Subcontractors.
- G. The Contractor shall provide a representative at time of swimming pool start-up to coordinate all trades related to swimming pool system(s).

1.06 RESPONSIBILITIES OF THE MECHANICAL SUBCONTRACTOR

- A. The Mechanical Subcontractor shall be licensed in the State of California and provide written notifications to Swimming Pool Subcontractor and contractor when necessary to excavate and backfill within the swimming pool construction site.

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- B. The Mechanical Subcontractor shall not utilize any swimming pool piping trench for installation of any sanitary sewer, storm sewer, domestic water, hot water, chilled water or natural gas line.
- C. The Mechanical Subcontractor shall furnish and install all sanitary sewer piping, including vent stacks (if necessary), for backwash pits, floor drains and floor sinks as required by code, shown on Drawings, and herein specified.
- D. The Mechanical Subcontractor shall furnish and install all storm sewer piping and site drainage systems as required by code, shown on the Drawings, and herein specified.
- E. The Mechanical Subcontractor shall provide a minimum 75 psi water supply for swimming pool construction work within fifty (50) feet of the swimming pool construction site(s).
- F. The Mechanical Subcontractor shall furnish and install reduced pressure backflow protected domestic water lines to P.O.C. within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.
- G. The Mechanical Subcontractor shall furnish and install natural gas piping, pressure regulation and valving to P.O.C. within swimming pool Mechanical Room as required by code, shown on the drawings, and herein specified.
- H. The Mechanical Subcontractor shall furnish and install all ductwork, louvers, and all HVAC equipment within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.
- I. The Mechanical Subcontractor shall provide a representative at time of swimming pool start-up to coordinate work related to swimming pool system(s).

1.07 RESPONSIBILITIES OF THE ELECTRICAL SUBCONTRACTOR

- A. The Electrical Subcontractor shall be licensed in the State of California and shall furnish and install electrical service to swimming pool Mechanical Room sized to accommodate all necessary swimming pool equipment as shown on the Drawings and herein specified.
- B. The Electrical Subcontractor shall furnish any temporary power needed by the Swimming Pool Subcontractor within fifty (50) feet of the swimming pool construction site(s).
- C. The Electrical Subcontractor shall furnish and install all conduits, conductors, starters/disconnects, panels, circuits, switches and equipment as required for

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lighting, ventilation and HVAC equipment within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.

- D. The Electrical Subcontractor shall furnish and install all conduits, conductors, panels, circuits, switches and equipment for area lighting as required by code, shown on the Drawings, and herein specified.
- E. All equipment, material and installation shall be as required under Division 16 of the Specifications and shall conform to NEC Article 680 (latest revision), State and Local Codes, and as may be required by all authorities having jurisdiction over swimming pool construction within the State of California.
- F. The Electrical Subcontractor shall provide a representative at time of swimming pool start-up to coordinate work related to swimming pool system(s).

1.08 INTENT

- A. It is the intention of these specifications and Drawings to call for finished work, tested and ready for operation. Wherever the work "provide" is used, it shall mean "furnish and install complete and ready for use."
- B. Minor details not usually shown or specified, but necessary for proper installation and operation, shall be included in the work, the same as if herein specified or shown.

1.09 SCHEDULE OF VALUES

- A. Provide a Schedule of Values for all work specified in each of the technical specifications listed in the table below, regardless of whether the work is performed by the swimming pool contractor or others. Values listed shall be fully burdened, with contractor general conditions, overhead, profit and bonds included. Payments for swimming pool work completed shall not be approved until Schedule of Values has been submitted to and approved by Architect.

SWIMMING POOL SCHEDULE OF VALUES			
No.	Section #	Description	Value
1.	131101	Swimming Pool Excavation	
2.	131102	Swimming Pool Concrete	
3.	131103	Swimming Pool Shotcrete	
4.	131104	Swimming Pool Ceramic Tile	
5.	131105	Swimming Pool Plaster	
6.	131106	Swimming Pool Equipment	
7.	131107	Swimming Pool Mechanical	

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8.	131108	Swimming Pool Electrical	
Total			

1.10 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Subcontractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing submittals with performance construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for schedules performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for re-submittals as follows. Time for review shall commence on Architect's receipt of submittal.
 - 1. Initial Review: Allow fifteen (15) days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contract when a submittal being processed must be delayed for coordination.
 - 2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow twenty-one (21) days for initial review of each submittal.
 - 3. Direct Transmittal to Consultant: Where the Contract Documents indicate that submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Subcontractor.
 - 4. If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 5. Allow fifteen (15) days for processing each submittal.

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6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- E. Identification: Place a title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on title block.
 2. Provide a space on title block to record Subcontractor's review and approval markings and action take by Architect.
 3. Include the following information on title block for processing and recording action taken: (See Attached Sample)
 - a. Project name.
 - b. Date.
 - c. Name and address of Subcontractor.
 - d. Name of Subcontractor.
 - e. Name of Supplier.
 - f. Name of Manufacturer.
 - g. Unique identifier, including revision number.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - j. Other necessary identification.

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SUBMITTAL FOR:**SUBMITTAL TO:****SUBCONTRACTOR:**

Item Number: _____

Section Number: _____

Section Description: _____

Subcontractor: _____

Supplier: _____

Manufacturer: _____

Product Code: _____

Quantity: _____

Subcontractor Certification:**Contractor's Submittal Stamp:**

It is hereby certified that the equipment or material designated in this submittal is proposed to be incorporated in the above named project and is in compliance with the contract drawings and / or specifications and is submitted for approval.

Certified by: _____

Date: _____

Job _____

Superintendent: _____

Revisions: _____

Architect's Review Stamp and Comments

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- F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract documents on submittal.
- G. On all catalogue or cut sheets identify which model or type is being submitted.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Product data and shop drawings shall be packaged within a three ring binder and colored samples shall be packaged on a heavy cardboard. Transmit each submittal using a transmittal form.
 - 1. On an attached separate sheet, prepared on Subcontractor's letterhead, record relevant information, request for data, revisions other than those requested by Architect on previous submittals and deviations from requirements of the Contract documents, including minor variations and limitations. Include the same label information as the related submittal.
 - 2. Include Subcontractor's certification stating that information submitted complies with requires of the Contract Documents.
 - 3. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of Subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Remarks.
- I. Distribution: Furnish copies of final submittals to manufacturers, Subcontractors, suppliers, fabricators, installers, authorities having jurisdiction and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

1.11 SUBSTITUTIONS

- A. To obtain approval to use unspecified products, bidders shall submit requests for substitution at least ten (10) days prior to bid date. Requests shall only be considered if they clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. All unspecified products and equipment will be considered on an "or equal" basis at the discretion of the Designated Representative. Requests for substitution received after the specified deadline will

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not be considered. Where a conflict exists between the requirements of the General Conditions / Special Conditions / Division 1 concerning substitutions and the requirements of this Article, this Article (Section 13 11 00, Article 1.10) shall govern.

- B. Where the Swimming Pool Subcontractor proposes to use an item of equipment other than that specified or detailed on the Drawings which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the architectural, mechanical, or electrical layout, all such redesign and all new drawings (stamped by California Licensed Engineer) and detailing required shall be prepared by the Swimming Pool Subcontractor, at their own expense, submitted for review and approval by the Designated Representative prior to bid.
- C. Where such approved deviation requires a different quantity and arrangement of piping, supports and anchors, wiring, conduit, and equipment from that specified or indicated on the Drawings, the Swimming Pool Subcontractor shall furnish and install any such piping, structural supports, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, at no additional cost to the Owner.

1.12 SURVEYS AND MEASUREMENTS

- A. The Swimming Pool Subcontractor shall base all measurements, both horizontal and vertical, from benchmarks established by the Contractor. All work shall agree with these established lines and levels. The mechanical Drawings do not give exact details as to elevations of piping, exact locations, etc. and do not show all offsets, control lines, pilot lines and other installation details. Verify all measurements at site and check the correctness of same as related to the work.

1.13 DRAWINGS

- A. Drawings are diagrammatic and indicate the general arrangement of the systems and work included in the Subcontractor. Drawings are not to be scaled. The architectural drawings and details shall be examined for exact dimensions. Where they are not definitely shown, this information shall be obtained from the Designated Representative.

1.14 SWIMMING POOL SUBSUBCONTRACTOR

- A. The swimming pool construction work as herein described and specified in Division 13 of the Project Manual shall be the complete responsibility of a qualified and specifically licensed (C-53 license classification within the State of California) Swimming Pool Contractor or Subcontractor with extensive experience in commercial public use swimming pool installations.

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- B. The Contractor shall require the Swimming Pool Subcontractor to furnish to the Contractor performance and payment bonds in the amount of 100% of the Swimming Pool Subcontractor's bid written by a surety Company properly registered in the State of California and listed by the U.S. Treasury. The expense of the bond(s) is to be borne by the Subcontractor. The Contractor shall clearly specify the amount and requirements of the bond(s) in the Contractor's written or published request for subbids. The Contractor's written or published request for subbids shall also specify that the bond(s) expense is to be borne by the Subcontractor.
- C. Subcontractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Requirements, Section 13 11 00, as follows:
1. Subcontractor has derived 50% of its annual revenue from municipal or public-use swimming pool construction for each of the last five (5) years.
 2. Subcontractor has, in the last five (5) years, constructed or reconstructed at least five (5) commercially designed municipal or public-use swimming pools, each of which have incorporated a minimum size of 6,000 square feet of water surface area with a concrete and ceramic tile perimeter overflow gutter and self-modulating balance tank.
 3. The following list of projects meet the requirements of section (b) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.
 - a. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____
 - b. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____
 - c. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____
 - d. Owner: _____
Scope of Project: _____

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Contact Person: _____

Phone Number: _____

Architect for Project: _____

e. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

D. Swimming Pool Deck Subcontractor other than the swimming pool Subcontractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Requirements, Section 13 11 00, as follows:

1. Subcontract has, in the last five (5) years, constructed at least five (5) commercially designed cantilevered pool decks over perimeter gutters, each of which have incorporated a minimum size of 6,000 square feet of water surface area of the swimming pool.
2. The following list of projects meet the requirements of section (b) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

SWIMMING POOL DECK SUBCONTRACTOR

a. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

b. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

c. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

d. Owner: _____

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Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

e. Owner: _____
Scope of Project: _____
Contact Person: _____
Phone Number: _____
Architect for Project: _____

1.15 OPERATING INSTRUCTIONS

- A. The Swimming Pool Subcontractor shall determine from actual samples of pool water supplied by the Owner, the proper water management program necessary for maximum operating efficiency and comfort. The Swimming Pool Subcontractor shall provide the services of experienced personnel familiar with this type of pool system operation, in conformance with Section 13 11 05 of the Specifications.

1.16 MAINTENANCE MANUALS

- A. The Swimming Pool Subcontractor shall provide six (6) bound sets for delivery to the Designated Representative of instructions for operating and maintaining all systems and equipment included in this Contract. Manufacturer's advertising literature or catalog pictures will not be acceptable for operating and maintenance instructions.
- B. Bound in ring binders shall be all parts lists, periodic maintenance instructions and troubleshooting guidelines for all pool equipment, including but not limited to filters, pumps, controllers, water chemistry control equipment, etc.

1.17 SECURE FROM THE OWNER

- A. A complete Owner-furnished filling of the swimming pools.
- B. The Owner's assistance, as specified herein, from the time of start-up until final written acceptance of the swimming pool system(s).
- C. Chemicals as required for swimming pool operation after Swimming Pool Subcontractor completes initial water chemistry balance and water treatment during the maintenance period described in Section 13 11 05 of the Specifications.

1.18 WARRANTY

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- A. The Swimming Pool Subcontractor shall warrant all swimming pool structures, finishes and systems against defects in material and workmanship for a period of one year after the date of acceptance by the Owner. Any repair or replacement required due to defective material or workmanship will be promptly corrected by the Swimming Pool Subcontractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 13 11 01

SWIMMING POOL EXCAVATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Finish and fine grading to bring the surface of the ground to the required grades and elevations as indicated on the Drawings.
- B. Subgrade improvements and placing of compacted fills.
- C. Excavation and backfill for all swimming pool, pool deck, surge chamber and backwash retention tank structural requirements, including footings, foundations, slabs and walls.

1.02 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Conform with requirements of the General Conditions, and more specifically the following:
 - 1. Comply with California Building Code, latest edition.
 - 2. Comply with applicable construction safety orders, latest edition, Federal and State OSHA.

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3. Comply with applicable trench safety provisions, latest edition, Federal and State OSHA.

B. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

C. Project/Site Conditions:

1. Be familiar with site and subsurface conditions.
2. Excavation is unclassified and includes excavation to sub-grade elevations indicated or necessary, regardless of character of materials and obstructions encountered.
3. Provisions for mitigation of wet soils due to seepage or rain shall be made during excavation and throughout construction. If wet soils are encountered within the swimming pool excavations, de-watering shall be provided and the Geotechnical Engineer shall make recommendations for moist soil mitigation.
4. Where slope instability is encountered, all excavations within those areas shall be 1:1 or flatter. Forming of vertical walls may be necessary, and all soil conditions shall be field verified by the Geotechnical Engineer.
5. Contractor shall review the Geotechnical Investigation Report as furnished by the Owner to determine the suitability of the soils.
6. Refer to General Conditions, Articles 3.17 and 3.18.

D. Adverse Weather Conditions:

1. During the periods when site soil moisture content is substantially in excess of moisture content required for optimum compaction, do not perform fill compaction.
2. When unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas by compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage to prevent erosion.

1.03 SUBMITTALS AND SUBSTITUTIONS

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- A. Provide submittals in conformance with requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
 - 1. Offsite fill material, if applicable.
- C. Submit proof of qualifications as specified in Article 1.02.B of this Section.

1.04 EXCAVATING & TRENCHING, GENERAL REQUIREMENTS

- A. Refer to Section 01 50 00, Temporary Facilities and Controls.
- B. All trenches, holes, etc. are to be completely protected using solid barricades, steel plates, and plywood both during construction and during off hours, including night time.
- C. Flashing warning light barricades are required on sidewalks, roads, and any other critical areas that require night time protection.
- D. Roads, paths and sidewalks shall not be blocked at any time or in any way. Trenching across roads, paths or sidewalks involves special instructions and review of the construction procedure by the Owner at least three (3) days prior to the Work actually being started.
- E. Construction equipment, including all trucks, cars, etc. shall not be parked or driven on roads, paths or sidewalks. Items not allowed on roads, paths or sidewalks include hoses, power cords, ropes, construction materials, dirt and debris, etc.
- F. All roads, paths and sidewalks must remain clear and the Contractor shall maintain temporary safe and effective pedestrian access at all times.
- G. Drawings show existing major underground utilities using the best information available. The Contractor shall also fully check public works reference drawings prior to excavation. Call local Dig Alert to locate utilities to ensure safety.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fill Material, General: All material shall be subject to the review of the Geotechnical Engineer to determine acceptability.

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- B. On-site Fill Material: All on-site fill material shall be soil or soil-rock mixture which is free from organic matter and other deleterious substances; it shall contain no rocks or lumps over three (3) inches in greatest dimension and not more than fifteen percent (15%) of the rocks or lumps shall be larger than two (2) inches in greatest dimension. Material from the pool excavations may not be acceptable native fill material. A determination must be made before their use by the Geotechnical Engineer.
- C. Imported Fill Material: All imported fill material shall meet the requirements of Paragraph 2.01(A) and 2.01(B) above and shall in addition, be predominately granular and non-expansive, with a maximum particle size of three (3) inches.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify drawing dimensions and elevations with actual field conditions. Inspect related Work and adjacent surfaces and report discrepancies and conditions which prevent proper execution of the Work to the Owner's Representative.

3.02 SUBGRADE IMPROVEMENTS

- A. Clearing: Strip site area (as defined within the Drawings) of any topsoil containing vegetation, trees and roots, organic matter, and other debris, and dispose of as specified.
- B. Placement of Fills: Place fill, consisting of approved soils, clean and free of all vegetation, debris, and rocks larger than three (3) inches, in uniform six (6) inch lifts. Fill to be compacted at optimum moisture to ninety-five percent (95%) maximum density with approved mechanical compaction equipment.

3.03 EXCAVATION

- A. Checking Layout: Contractor shall, before commencing the excavation work, check all lines, stakes and levels for dimensions, angles, elevations and grades with the survey.
- B. Over-Excavation:
 - 1. To provide uniform support, the soil beneath the swimming pool(s) shall be overexcavated and recompacted to a depth of at least three (3) feet below the swimming pool footings, foundations, grade beams and slabs. The overexcavation should extend at least five (5) feet beyond the inside and

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outside edges of the swimming pool(s). Prior to placing fill, the subgrade exposed by the overexcavation should be scarified to a depth of at least eight (8) inches, moisture-conditioned to at least three percent (3%) above optimum moisture content, and compacted to at least ninety percent (90%) relative compaction.

2. Excavate for footings, foundations, grade beams and slabs to depths indicated on Drawings. Elevations and depths of excavations shown on the Drawings shall govern and will be basis for bidding and execution of work except as otherwise may be directed by the Owner's Representative. Greater or lesser quantities of excavation and backfill required by authorized instructions shall be adjusted in accordance with the General Conditions.
 3. In areas where proposed swimming pool decking is anticipated, the site should be excavated to a depth of one (1) foot below existing grade and backfilled with compacted engineered fill. The intent of this recommendation is to remove soils susceptible to compressibility.
 4. Except where extra excavation is directed by the Owner's Representative or Geotechnical Engineer, excavations made to a greater depth or size than indicated or required shall be filled with concrete or shotcrete as specified in Sections 13 11 02 / 13 11 03.
- C. Dimensions: Excavate to proper dimensions as shown, cut square and smooth with firm level bottoms. Prepared excavations shall be approved by Geotechnical Engineer. Excavations shall be free of loose or disturbed materials.
- D. Excess Water Control: Keep all excavations free from standing water by pumping, draining or providing proper protection against water intrusion. If soil becomes soft, soggy or saturated, perform additional excavation to firm soil not affected by water.
- E. Form Removal: Make all excavations of sufficient size to permit installation and removal of forms and all other required work.
- F. Alternate Forming: Sides of structures may be formed by neat excavations where banks will stand without caving. If banks cave, provide forming as required and widen excavation to permit forming, bracing and inspection. Provide forming in conformance with Section 13 11 02 and all recognized safety standards. Form all grade beams.

3.04 BACKFILLING

- A. Method: After concrete has been placed, forms removed and concrete work approved, backfill the excavations with earth to indicated or required grades. Carry on backfilling simultaneously on each side of walls or grade beams. Remove all rubbish and wood from the excavations before placing backfill.

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- B. Concrete Protection: Prior to placing any backfill, adequately cure all concrete and provide any bracing required to ensure the stability of the structure. Protect waterproofing and dampproofing against damage in a manner acceptable to the Owner's Representative. Remove bracing as backfill operations progress.
- C. Material: Use the material from the excavations for backfilling, subject to approval by Soils Testing Agency. The earth shall be free from debris, large clods or stones.
- D. Lifts: Place backfill in six (6) inch loose layers, bring to optimum moisture content and compact to ninety percent (90%) of maximum density, sloping down and away from the structures being backfilled.
- E. Moisture: Rigidly control the amount of water used to insure optimum moisture conditions for the type of fill material used. Excessive amounts of water causing saturation of earth will not be permitted. Compaction by flooding or jetting is prohibited.

3.05 GRADING

- A. Slopes: Grade to finish grades indicated on Drawings, with uniform slopes between all points.
- B. Subgrades: Blade to required grade and roll or tamp subgrades for exterior slabs, decks and paving.

3.06 CLEAN-UP

- A. Disposal: Haul away rubbish, debris, and rocks from site promptly and dispose of legally. Burning rubbish on site is prohibited.
- B. Dust and Noise Abatement: During entire period of construction keep area and material being loaded sprinkled to reduce dust in air and annoyance to premises and surrounding property.

END OF SECTION

SECTION 13 11 02

SWIMMING POOL CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Forming for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.
- B. Reinforcement for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.
- C. Cast-in-place concrete for swimming pool structures. Do not use waterproofing admixture of any kind.
- D. Cast-in-place concrete for swimming pool decks with Xypex C-500 crystalline waterproofing admixture. Waterproofing admixture for swimming pool decks only.
- E. Provide labor, materials and equipment as required to install sealant for all pool deck expansion joints, or any other caulking, as indicated on the aquatic Drawings and herein specified.

1.02 QUALITY ASSURANCE

- A. Qualifications of Workers:
 - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
 - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
 - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards:
 - 1. In addition to complying with the California Building Code (latest edition), comply with all pertinent recommendations contained in " "Guide to

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Formwork for Concrete" Publication ACI 347R-14 of the American Concrete Institute.

2. In addition to complying with California Building Code (latest edition), comply with all pertinent recommendations contained in "Guide to Presenting Reinforcing Steel Design Details," Publication ACI 315R-18 of the American Concrete Institute.
 3. In addition to complying with all local codes and regulations, comply with all pertinent recommendations contained in American Society for Testing and materials (ASTM); ASTM C 920 "Standard Specification for Elastometric Joint Sealants."
- C. Tolerances: Construct all swimming pool concrete straight, true, plumb and square within a tolerance horizontally of one in 200 and vertically of one in 2000.

1.03 SUBMITTAL AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform to requirements of Article 1.10.A of Section 13 11 00.
- B. Samples and Certificates, Concrete Reinforcement:
1. Provide all data and access required for testing as described in Section 01 45 00 of the Specifications.
 2. All material shall bear mill tags with heat number identification. Mill analysis and report shall be made available upon request.
 3. Rebar samples shall be taken from bundles as delivered from the mill with the bundles identified as to heat number and the accompanying mill certificate. One tensile test and one bend test shall be made from a sample from each 10 tons or fraction thereof of each size of reinforcing steel.
 4. Design mix from batch plant demonstrating previous use history and associated strengths at 28 days.
 5. The Contractor shall submit a mix design stamped and signed by a licensed engineer for approval by the Owner's Representative prior to any placement of concrete.
 6. The Contractor shall submit a separate mix design stamped and signed by a licensed engineer for the swimming pool decks which contains the specified Xypex C-500 crystalline waterproofing admixture for approval by the Owner's Representative prior to any placement of concrete.
- C. Submit proof of qualifications as specified in Article 1.02.A of this Section.
- D. Submit reinforcing shop drawings for pool walls, gutters, floors, dike walls and balance tank, etc. as shown on the construction drawing.

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1.04 PRODUCT HANDLING

- A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.
- C. Protection: Use all means necessary to protect the swimming pool concrete before, during, and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

PART 2 - PRODUCTS

2.01 CONCRETE FORMWORK

A. Form Materials:

- 1. Form Lumber: All form lumber in contact with exposed concrete shall be new except as allowed for reuse of forms in Part 3 of this Section, and all form lumber shall be one of the following, a combination thereof, or an equal approved in advance by the Owner's Representative.
 - a. "Plyform," Class I or II, bearing the label of the Douglas Fir Plywood Association; "Inner-Seal" Form as manufactured by Louisiana-Pacific, or approved equal.
 - b. Douglas Fir-Larch, number two grade, seasoned, surfaced four sides.
- 2. Form Release Agent: Colorless, non-staining, free from oils; chemically reactive agent that shall not impair bonding of paint or other coatings intended for use.

B. Ties and Spreaders:

- 1. Type: All form ties shall be a type which do not leave an open hole through the concrete and which permits neat and solid patching at every hole.
- 2. Design: When forms are removed, all metal reinforcement shall be not less than two (2) inches from the finished concrete surface.
- 3. Wire Ties and Wood Spreaders: Do not use wire ties or wood spreaders.

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- C. Alternate Forming Systems: Alternate forming systems may be used subject to the advance approval of the Owner's Representative.

2.02 CONCRETE REINFORCEMENT

- A. Bars: Bars for reinforcement shall conform to "Specifications for Deformed Carbon-Steel Bars for Concrete Reinforcement," ASTM A-615, Grade 60.
- B. Wire Fabric: Wire fabric shall conform to "Specifications for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete," ASTM A1064.
- C. Tie Wire: Tie wire for reinforcement shall conform to "Specifications for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete," ASTM A1064 black annealed 16-gauge tie wire.

2.03 CAST-IN-PLACE CONCRETE

- A. Concrete:
 - 1. All concrete, unless otherwise specifically permitted by the Owner's Representative, shall be transit-mixed in accordance with ASTM C94. Concrete for water retaining structures that do not receive a waterproofing finish such as ceramic tile or swimming pool plaster shall receive a topical waterproofing finish.
 - 2. The control of concrete production shall be under the supervision of a recognized testing agency, selected by the Owner in accordance with Section 01 25 00 of the Specifications.
 - 3. Quality: All concrete shall have the following minimum compressive strengths at twenty-eight (28) days and shall be proportioned within the following limits
 - a. 4,000 psi minimum compressive strength for cast-in-place concrete swimming pool structures.
 - b. 4,000 psi minimum compressive strength for cast-in-place swimming pool decks with Xypex C-500 waterproofing admixture.
 - c. 1" maximum size aggregate.
 - d. 6.0 minimum sacks of cement per cubic yard.*
 - e. Maximum water to cement ratio of 0.40- 0.45 maximum.
 - f. 4" maximum slump.
 - g. Xypex Admix C-500 2% - 2.5% by weight of cement content. Contact Xypex Technical Services to confirm dosage. (To be used for swimming pool decks only.)
 - * For estimate only: to be determined by mix design.

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4. Cement: All cement shall be Portland Cement conforming to ASTM C-150, Type II or V and shall be the product of one manufacturer.
5. Aggregates:
 - a. Shall conform to "Standard Specifications for Concrete Aggregates," ASTM C33, except as modified herein.
 - b. Coarse Aggregate: Clean sound washed gravel or crushed rock. Crushing may constitute not more than 30% of the total coarse aggregate volume. Not more than 5% flat, thin, elongated or laminated material nor more than 1% deleterious material shall be present. 1" aggregate graded from 1/4" to 1", fineness modulus 6.90 to 7.40. 1-1/2" graded from 1/2" to 1-1/2", fineness modulus 7.80 to 8.20.
 - c. Fine Aggregate: Washed natural sand of hard, strong particles and shall contain not more than 1% of deleterious material, fineness modulus 2.65 to 3.05.
 - d. Aggregate must be certified, non-expansive from a "known" good source.
6. Water: ASTM C1602 Clean, fresh, free from acid, alkali, organic matter or other impurities liable to be detrimental to the concrete (potable).
7. Admixtures: Admixtures shall be used upon approval of the Owner's Representative.
 - a. Air-entraining admixture: Conform to ASTM C260.
 - b. Water-reducing admixture: Conform to ASTM C494.
 - c. Waterproofing admixture for swimming pool decks only: Xypex Admix C-500, No substitutions permitted. Conform to ASTM C494.
8. Xypex Admix C-500 Dosage: To be used for swimming pool decks only.
 - a. General: Xypex Admix must be added to concrete mix at time of batching. It is important to obtain a homogeneous mixture of Xypex Admix with the concrete. Do not add dry Admix powder directly to wet mixed concrete as this could cause clumping and thorough dispersion may not occur.
 - b. Dosage Rate: Under normal conditions, the crystalline waterproofing powder shall be added to the concrete mix at the following rates:
 - 1.) Xypex Admix C-500 2% – 2.5% by weight of cement content
 - c. Weather Conditions: For mixing, transporting and placing concrete under conditions of high temperature or low temperature, follow concrete practices such as those referred to in ACI 305R (Hot Weather Concreting) and ACI 306R (Cold Weather Concreting) or other applicable standards.

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- d. Concrete Batching & Mixing Procedures: Procedures for the addition of Xypex admixture will vary according to type of batch plant operation and equipment. Prior to the placement of any concrete, the concrete batch plant and the contractor shall be responsible to consult with the local Xypex representative concerning additional procedures for the addition, mixing and to confirm dosage.

Note: For enhanced chemical protection or for meeting specific project requirements or where the concrete mix design contains higher than 25% type F fly ash content or includes a portland cement/slag cement/type C fly ash blend, consult with manufacturer or its authorized representative to determine appropriate dosage rates.

- B. Construction Joints: Use keyform for slab pour joints. Either preformed galvanized or PVC construction joint forms of a standard manufacturer may be used. Install per manufacturer's recommendations and tool edges of slabs.
- C. Waterstops: PVC bulb-type for use between concrete pours / lifts, conforming with ASTM D 570, D 624, and D 638. Provide in configuration(s) as recommended by manufacturer for specific application. Greenstreak, W.R. Meadows, or approved equal.
- D. Curing Materials:
 - 1. Liquid Membrane (covered slab): Chlorinated rubber membrane forming, curing-sealing compound conforming to ASTM C309.
 - 2. Liquid Membrane (exposed slab): Clear methyl and butyl methacrylate non-staining, membrane forming, curing-sealing compound conforming to ASTM C309.
- E. Cement Grout and Drypack:
 - 1. Cement Grout: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make mixture flow under its' own weight.
 - 2. Drypack: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make a stiff mix that will mold into a ball. Mix no more than can be used in 30 minutes.

2.04 JOINT SEALANT MATERIALS

- A. Caulking: Multipart, non-sag gun grade polyurethane based sealant meeting the requirements of ASTM C920-02, Type S or M, Mamemco International, Pecora, Sika Corp., Sonneborn Building Products, Tremco or approved equal. Self leveling caulking materials are not allowed.

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- B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- C. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- D. Sealant Backer Rod: Provide compressible polyethylene or polyurethane backer rod as recommended by the sealant manufacturer.
- E. Bond Breaker Tape: Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant.
- F. Sand: Cover the surface of the caulking with #30 silica sand.

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the advance review by the Owner's Representative.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 - 1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
 - 2. Verify that all Work may be constructed in accordance with all applicable codes and regulations, the referenced standards, the original design, and in accordance with site specific Geotechnical Report.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify the Owner's Representative.
 - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
 - 3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive work.

3.02 CONCRETE FORMWORK

A. Construction of Forms:

1. General: Construct all required forms to be substantial, sufficiently tight to prevent leakage of concrete paste, and able to withstand excessive deflection when filled with wet concrete.
2. Layout:
 - a. Form for all required cast-in-place concrete to the shapes, sizes, lines and dimensions indicated on the Drawings.
 - b. Exercise particular care in the layout of forms to avoid necessity for cutting concrete after placement.
 - c. Make proper provisions for all openings, offsets, recesses, anchorages, blocking and other features of the Work as shown or required.
 - d. Perform all forming required for Work of other trades and do all cutting and repairing of forms required to permit such installation.
 - e. Carefully examine the Drawings and Specifications and consult with other trades as required relative to providing for pipe and conduit penetrations, reglets, chases and other items in the forms.
3. Imbedded Items: Set all required steel frames, angles, bolts, inserts and other such items required to be anchored in the concrete prior to concrete being placed.
4. Bracings:
 - a. Properly brace and tie the forms together so as to maintain position and shape and to ensure safety to workmen.
 - b. Construct all bracing, supporting members and centering of ample size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.
 - c. Properly space the forms apart and securely tie them together, using metal spreader ties that give positive tying and accurate spreading.
5. Wetting: Keep forms sufficiently wetted to prevent joints from opening up before concrete is placed.

B. Plywood Forms:

1. Design: Nail the plywood panels directly to studs and apply in a manner to minimize the number of joints.
2. Joints: Make all panel joints tight butt joints with all edges true and square.

C. Footing Forms:

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1. Wood Forms: All footing forms shall be wood unless otherwise specifically approved by the Owner's Representative, or as specified in paragraph 3.02(C)(2).

2. Earth Forms:

- a. Side walls for footings may be of earth provided the soil will stand without caving and the sides of the bank are made with a neat cut to the minimum dimensions indicated on the Drawings.
- b. For excavation and backfill of earth forms, conform with applicable provisions of Section 13 11 01.

D. Reuse of Forms:

- 1. Reuse of forms shall be subject to advance approval of the Owner's Representative.
- 2. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way delay or change the schedule for placement of concrete from the schedule obtainable if all forms were new.
- 3. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way impart less structural stability to the forms nor less acceptable appearance to finished concrete.

E. Removal of Forms:

1. General:

- a. In general, side forms of footings may be removed seven (7) days after placement of concrete, but time may be extended if deemed necessary by the Owner's Representative.
- b. Forms for footings, foundations, grade beams, slabs, walls, and other formed concrete may be removed fourteen (14) days after placement of concrete.

2. Removal:

- a. Use all means necessary to protect workers, passersby, the installed Work of other trades and the complete safety of the structure.
- b. Cut nails and tie wires or form ties off flush, and leave all surfaces smooth and clean.
- c. Remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas.

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- d. Flush all holes resulting from the use of spreader ties and sleeve nuts using water, and then solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun; grout shall be one part Portland Cement to 2-1/2 parts sand; apply grout immediately after removing forms.

3.03 CONCRETE REINFORCEMENT

A. Bending:

1. General:

- a. Fabricate all reinforcement in strict accordance with the Drawings.
- b. Do not use bars with kinks or bends not shown on the Drawings.
- c. Do not bend or straighten steel in a manner that will injure the material. (When opposite end is already encased in concrete.)

2. Design:

- a. Bend all bars cold.
- b. Make bends for stirrups and ties around a pin having a diameter of not less than four (4) times the minimum thickness of the bar (#3 - #5) per ACI.
- c. Make bends for other bars, including hooks, around a pin having a diameter of not less than six (6) times the minimum thickness of the bar.

B. Placing:

1. General: Before the start of concrete placement, accurately place all concrete reinforcement, positively securing and supporting by concrete blocks, metal chairs or spacers, or by metal hangers.

2. Clearance:

- a. Preserve clear space between bars of not less than one and one-half (1-1/2) times the nominal diameter of the round bars.
- b. In no case let the clear space be less than one and one-half (1-1/2) inches nor less than one and one-third (1-1/3) times the maximum size of the aggregate.
- c. Provide the following minimum concrete covering of reinforcement:

- 1) Concrete deposited against earth: three (3) inches minimum.

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- 2) Concrete below grade deposited against forms: two (2) inches minimum.
 - 3) Concrete elsewhere: As indicated on Drawings or otherwise approved by the Owner's Representative.
3. Splicing:
 - a. Horizontal Bars:
 - 1) Place bars in horizontal members with minimum lap at splices sufficient to develop the strength of the bars.
 - 2) Bars may be wired together at laps except at points of support of the member, at which points preserve clear space described above.
 - 3) Whenever possible, stagger the splices of adjacent bars.
 - 4) Splice forty (40) bar diameters minimum.
 - 5) Provide non-contact lap slices for shotcrete.
 - b. Wire Fabric: Make all splices in wire fabric at least one and one-half (1-1/2) meshes wide.
 - c. Other Splices: Make only those other splices that are indicated on the Drawings or specifically approved by the Owner's Representative.
4. Dowels: Place all required steel dowels and securely anchor them into position before concrete is placed.
5. Obstructions: In the event conduits, piping, inserts, sleeves and other items interfere with placing reinforcement as indicated on the Drawings or otherwise required, immediately consult with the Owner's Representative and obtain approval of a new procedure prior to placing concrete.
- C. Cleaning Reinforcement: Steel reinforcement, at the time concrete is placed around it, shall be free from rust scale, loose mill scale, oil, paint and all other coatings which will destroy or reduce the bond between steel and concrete. Bend down all tie wire away from the top of the pool deck. Maintain a 2" clear from top of concrete to the tie wire.

3.04 SHOTCRETE REINFORCEMENT

- A. The maximum size of reinforcement shall be No. 5 bars unless it can be demonstrated by preconstruction tests that adequate encasement of larger bars can be achieved. When No. 5 or smaller bars are used, there shall be a minimum clearance between parallel reinforcement bars of 2-1/2 inches (64 mm). When bars larger than No. 5 are permitted, there shall be a minimum clearance between parallel bars equal to six diameters of the bars used. When two curtains of steel are

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provided, the curtain nearest the nozzle shall have a minimum spacing equal to 12 bar diameters and the remaining curtain shall have a minimum spacing of six bar diameters.

- B. Lap splices in reinforcing bars shall be by the non-contact lap splice method with at least 2 inches clearance between bars. The enforcement agency may permit the use of contact lap splices when necessary for the support of the reinforcing provided it can be demonstrated by means of preconstruction testing, that adequate encasement of the bars at the splice can be achieved, and provided that the splices are placed so that a line through the center of the two spliced bars is perpendicular to the surface of the shotcrete work.

3.05 CAST-IN-PLACE CONCRETE

A. Conveying and Placing Concrete:

1. Before placing concrete, mixing and conveying equipment shall be well cleaned, and the forms and space to be occupied by concrete shall be thoroughly cleaned and wetted. Ground water shall be removed until the completion of the work.
2. No concrete shall be placed in any unit of work until all formwork has been completely constructed, all reinforcement has been secured in place, all items to be built into concrete are in place, and form ties at construction joints tightened.
3. Concrete shall be conveyed from mixer to place of final deposit in such a way to prevent the separation or loss of ingredients. It shall be placed as nearly as practicable in its' final position to avoid rehandling or flowing. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six (6) feet. Use tremies, spouts and dump boxes in deep sections. Vibrators are not acceptable for facilitating concrete transport.
4. Concrete shall be tamped and spaded to insure proper compaction into all parts of forms and around reinforcement. A mechanical vibrator shall be used to thoroughly compact the concrete. Vibration must be by direct action in the concrete and not against forms or reinforcement.
5. Mixing and transport time as indicated in ASTM C94 is required. If air temperatures are between 85° and 90° F the delivery time is to be reduced to 75 minutes. When air temperatures is in excess of 90° F the delivery time should be reduced to 60 minutes.
6. Truck mixes without batch certificates will be rejected.

- B. Construction Joints / Expansion Joints: Construction joints and expansion joints shall be provided at locations and in the manner shown on the Drawings. With exception of existing concrete / new shotcrete joints, use PVC bulb-type waterstops appropriate for design condition between all concrete pours / lifts to avoid cold joints. Waterstops shall be placed in such a way to protect reinforcing steel from rust and oxidation. All

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expansion joints must be the full depth of the concrete section in which they are located.

- C. Slab Finishes: Concrete slabs shall be compacted and screeded uniformly to grades shown. Push large aggregates below the surface with a screen tamper, screed and bull float. As soon as the surface becomes workable, it shall be wood floated, then finished as indicated on the Drawings to a uniform smooth, true surface in a neat and workmanlike manner. Carefully coordinate slab finish requirements with other trades (ceramic tile, pool plaster) to insure concrete finish is appropriate substrate for final finish material.

1. Contractor shall provide three mock-up deck samples, minimum 3'x 3', with a wedge anchor installed in one sample. These (3) samples shall be constructed; one with a light broom finish, one (1) with a medium broom finish and one (1) with a heavy broom finish for determination and selection of an appropriate deck finish. Each sample shall be edged on all four sides to demonstrate a 3/4" radius edge. Anchor installation shall demonstrate acceptable interface between anchor and the top of deck. Deck samples shall remain on job site through final inspection for reference.
2. Pool Floor Slab: Heavy Wire Broom Finish.

D. Protection and Curing:

1. Concrete shall be protected from injurious action of the elements and defacement of any nature during construction.
2. All forms must be kept wet to prevent drying out of the concrete.
3. All concrete surfaces including footings must be kept wet for at least seven (7) days after concrete is placed.
4. Apply the appropriate curing materials, as specified in 2.03 of this Section, immediately after finishing slabs. Application shall be as specified by the manufacturer.

E. Form Removal:

1. Take care in removing forms so that surfaces are not marred or gouged and that corners are true, sharp and unbroken.
2. No steel spreaders, ties or other metal shall project from or be visible on any concrete surfaces.

F. Defective Work:

1. Should the strength of any concrete for any portion of the work indicated by tests of molded cylinders and core tests fall below minimum 28 days strength

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specified or indicated, concrete will be deemed defective work and shall be replaced.

2. Concrete work that is not formed as indicated, is not true to intended alignment, not plumb or level where so intended, not true to intended grades or elevations, not true to specified or selected finish, contains sawdust shavings, wood, or embedded debris, which exhibits cracks or contains fine or coarse sulfide particles, or expansive aggregates detrimental to performance or appearance of the concrete shall be deemed defective.
3. Promptly perform work required to replace and properly clean (by sandblasting if necessary) any defective concrete panels (control joint or expansion joint to control joint or expansion joint), at Contractor's expense, including all expense of additional inspection, tests, or supervision made necessary as a result of defective concrete.

3.06 EXPANSION JOINTS

- A. Temperatures: Do not install sealants when air temperature is less than 40°F.
- B. Tooling: Tool exposed joints to a slightly concave surface using slicking materials recommended by the manufacturer. The tooling procedure shall press sealant against the sides of the joint. No materials shall be left "feathered" out or smeared on the abutting materials. Completed joints shall have a uniform professional appearance.
- C. Joint Construction: Sealant joint width, thickness and cross-sectional profile to be constructed in strict accordance with the sealant manufacturer's recommendations.
- D. Sand: At the appropriate time cover the sealant with sand to provide a sanded finish.

3.07 CLEAN-UP

- A. Upon completion of the Work of this Section, immediately remove all swimming pool concrete materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 04

SWIMMING POOL CERAMIC TILE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Swimming pool ceramic tile detailed on the Drawings, including, but not limited to, the following:
1. Waterline Tile (at Swimming Pool and Activity Pool)
 2. Bond Beam/Waterline Tile (at Swimming Pool and Activity Pool)
 3. Waterline Depth Markers (at Swimming Pool and Activity Pool)
 4. Expansion Joint Tile(at Swimming Pool and Activity Pool)
 5. Lane Line and End Wall Target Tile (at Swimming Pool and Activity Pool)
 6. Trim Tile(at Swimming Pool and Activity Pool)
 7. 15 ft. Markers.
 8. Beach Entry (at Activity Pool)

1.02 QUALITY ASSURANCE

- A. Qualifications of Workers:
1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards: In addition to complying with all pertinent codes and regulations:
1. Manufacture of all tile shall be in accordance with ANSI A-137.1-1976.
 2. Install ceramic tile in accordance with the recommendations contained in the 2022 "Handbook for Ceramic Tile Installation" of the Tile Council of America, Inc.

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- C. Tolerances: Install all swimming pool ceramic tile straight, true, plumb and square within a tolerance horizontally of one in 200 and a tolerance vertically of one in 500. Waterline and gutter bullnose tile shall be level to 1/8" (+/- 1/16") around entire perimeter of swimming pools.

1.03 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00.
- B. Samples: Submit samples of each color and pattern in the specified groups. Character samples can be representative for review prior to screening of actual tile.
- C. Master Grade Certificate: Prior to opening ceramic tile containers, submit a Master Grade Certificate, signed by the manufacturer of the tile used and issued when the shipment is made, stating the grade, kind of tile, identification marks for the tile containers, and the name and location of the Project.
- D. Specifications: Submit manufacturer's recommended installation specifications for the Work.
- E. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect swimming pool ceramic tile before, during and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

PART 2 - PRODUCTS

2.01 TILE

- A. Waterline Tile:

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1. Material: All expansion joint tile shall be unglazed ceramic tile as manufactured and/or distributed by Dal-Tile, or approved equal.
 2. Size: 6 x 6 inches.
 3. Color: Dal-Tile #1174 'Seabreeze'
- B. Bond Beam / Waterline Tile:
1. Material: Group 4 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal. Contact Kylee Midura kylee.midura@daltile.com (858) 344-0019.
 2. Size: 1 x 1 inches.
 3. Color: Dal-Tile #D-621 'Nautical Blue'.
- C. Gutter Bullnose Tile:
1. Material: Group 4 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
 2. Size: 1 x 2 inches (#C-701).
 3. Color: Dal-Tile #D-621 'Nautical Blue'.
- D. Waterline Depth Markers
1. Material: All expansion joint tile shall be unglazed ceramic tile as manufactured and/or distributed by Dal-Tile, or approved equal.
 2. Size: 6 x 6 inches.
 3. Color: Inlays Ft. and In. Series. White Field, Black Silk Screen Numbers.
- E. Lane Line and End Wall Target Tile:
1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
 2. Size: 1 x 1 inches.
 3. Color: Dal-Tile #D-311, 'Black in 50-Meter Direction. Nautical Blue in 25-yard direction.
- F. Trim Tile:
1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
 2. Size: 1 x 1 inches.
 3. Color: Dal-Tile #D-311, 'Black'.
- G. 15 Meter Markers

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1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
2. Size: 1 x 1 inches.
3. Color: Dal-Tile #D-017, 'Red'.

H. Beach Entry Tile

1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.
2. Size: 1 x 1 inches.
3. Color: Dal-Tile #D-621 'Nautical Blue'.

2.02 MORTAR

- A. Sand for Mortar: Comply with requirements of fine aggregate for concrete.
- B. Cement: Type I Portland Cement, conforming to ASTM C150.
- C. Hydrated Lime: Conforming to ASTM C206 or 207, Type S.
- D. Water: From a potable source.
- E. Mortar shall meet ASTM C270 standards.

2.03 THIN SET MORTAR

- A. Laticrete 254 Platinum. Laticrete, Custom or equal.
- B. Water from a potable source.
- C. Mortar shall meet ASTM C627.

2.04 GROUT

- A. All tile grout shall be waterproof grout complying with the recommendations of referenced standards. Grout color shall be grey for dark backgrounds, white for light backgrounds (verify colors with Architect).

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of ceramic tile as indicated on the Drawings, shall be new, first

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quality of their respective kinds, and subject to the approval of the Owner's Representative.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Verify that ceramic tile can be installed in accordance with the original design and all referenced standards.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive its Work.

3.02 INSTALLATION

A. Method:

1. Install all ceramic tile in strict accordance with installation method P601-90 of the 2022 Handbook for Ceramic Tile Installation of the Tile Council of America, Inc.
2. Be certain to install all ceramic tile perfectly level, flush, plumb, and to the finish grades and elevations indicated on the Drawings.

B. Interface:

1. Carefully establish and follow the required horizontal and vertical elevations to insure proper and adequate space for the work and materials of other trades.
2. Coordinate and cooperate as required with other trades to insure proper and adequate interface of ceramic tile Work with the Work of other trades.

3.03 GROUTING

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- A. Follow grout manufacturer's recommendations as to grouting procedures and precautions.
- B. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.

3.04 EXTRA STOCK

- A. Provide one (1) unopened box of extra tile for 2.01B, and 2.01C for Owners use at a future time.

3.05 CLEAN-UP

- A. Upon completion of the swimming pool ceramic tile installation, thoroughly clean and polish the exposed surfaces of tile work. Completely clean work area of debris and rubbish occasioned by this Work and dispose of to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 05

SWIMMING POOL PLASTER

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Swimming pool plaster and waterproofing of swimming pool structures as indicated on the Drawings and herein specified.
- B. Start-up and operation instructions to Owner's operations and maintenance personnel and properly balance swimming pool water chemistry until the Owner takes occupancy.

1.02 QUALITY ASSURANCE

- A. Qualifications of Workers:
 - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

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2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards: Swimming pool plaster shall conform with requirements of Chapter 31B of California Building Code, latest edition. In addition, meet requirements of applicable portions of most current edition of the "Technical Manual," National Plasterers Council, Wauconda, Illinois.
- C. Start-up:
1. Furnish a swimming pool water chemistry consultant, with a minimum of five (5) years experience, possessing either AFO (Aquatic Facility Operator) or CPO (Certified Pool Operator) certification(s), to supervise and properly balance swimming pool water chemistry.
 2. Demonstrate to the Owner that all systems are fully operational and that calcium hardness, total alkalinity, chlorine residual and pH levels are within specified limits.
 3. Standards: Furnish labor and chemicals as required to condition the water properly to the following specifications:
 - a. Calcium Hardness: 200-400 parts per million (PPM)
 - b. Total Alkalinity: 80-100 PPM
 - c. Chlorine Residual: 1.00 to 2.0 PPM
 - d. pH Factor: 7.2 to 7.6

1.03 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Submit proof of qualifications as specified in Article 1.02.A and 1.02.C.1 of this Section.

1.04 PRODUCT HANDLING

- A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

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- B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.
- C. Protection: Use all means necessary to protect the swimming pool plaster before, during, and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner.

1.05 ENVIRONMENTAL CONDITIONS

- A. No plastering shall be done under unsuitable conditions of weather or temperature. No plastering shall be done when prevailing temperature is 40 degrees Fahrenheit or less.
- B. Do not install plaster during rain and, if rain commences after plastering has begun, immediately protect the plaster from rain by all means necessary until the plaster has set.
- C. Do not install plaster during wind greater than 10 mph and, if wind commences after plastering has begun, immediately protect the plaster from wind by all means necessary until the plaster has set.

PART 2 - PRODUCTS

2.01 CEMENT / AGGREGATE

- A. Luna Quartz® tiny pebble finish by Wet Edge Technologies. Altima® quartz finish by Wet Edge Technologies. Pebble-Fina® pool finish by Pebble Technologies.

2.03 COLOR

- B. All swimming pool plaster shall be white in color. Wet Edge Technologies shall be Luna Quartz® "Polar White". Wet Edge Technologies shall be Altima® "White". Pebble Technology shall be Pebble-Fina® "Classico". Contractor to obtain written approval on selected pebble color from the local Health Department prior to installation. Submit cut sheet, color sample and written approval for review by Architect and Owner."

2.03 WATER

- A. Water for swimming pool plaster shall be clean and free from injurious amounts of acid, alkali, and organics.

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2.04 GUTTER & SURGE CHAMBER WATERPROOFING

- A. Xypex, Miracote Miraflex Membrane C Hycrete Waterproofing System concrete additive or approved equal. Mix and apply per manufacturer's recommendations for specific application. Color shall be Gray.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 - 1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation can properly commence.
 - 2. Verify that swimming pool plaster can be installed in accordance with the original design and all referenced standards, including proprietary application techniques and application training/certifications.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify the Owner's Representative.
 - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
 - 3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive the Work.

3.02 INSTALLATION OF GUTTER & SURGE CHAMBER WATERPROOFING

- A. Provide two (2) coats of the specified gutter and surge chamber waterproofing prior to plastering the swimming pool. Prepare surfaces to receive waterproofing and cure in conformance with manufacturer's recommendations. Provide steel trowel application method to ensure uniform smooth, dense surface finish.

3.03 INSTALLATION OF POOL PLASTER

- A. Outdoor Pools or Spas:
 - 1. Completion of other work: **DO NOT** commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:

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- a. The Health Department and/or other governing agencies have approved the pool(s) and/or spas) for plaster.
- b. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.
- c. All landscaping in areas adjacent to the pool(s) or spa(s) is complete and the landscape irrigation system is operable.
- d. All painting in the pool area is complete.
- e. All welding and grinding in locations adjacent to the pool area are complete.
- f. The backwash sewer connection is complete.
- g. Pool(s) and/or spa(s) area(s) perimeter fencing installation is complete.
- h. All trash and debris have been removed from areas adjacent to the pool(s) or spa(s), particularly those areas that are normally upwind from the pool(s) or spa(s).
- i. All dust raising construction and/or activities in areas adjacent to the pool(s) or spa(s) are complete or mitigated.
- j. The circulation pump(s) is/are operational.
- k. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.
- l. All necessary chemicals (Chlorine, pH adjuster, Sodium Bicarbonate and Calcium Chloride or any other required chemicals) are on site and ready for use.
- m. Obtain written approval from the Owner and the Architect.

B. Indoor Pools or Spas:

- 1. Completion of Other Work: **DO NOT** commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:
 - a. The Health Department has approved the pool(s) and/or spa(s) for plaster.
 - b. All work above the pool(s) and/or spa(s) is complete.
 - c. All painting in the pool area is complete.
 - d. All welding and grinding in locations adjacent to the pool area are complete.
 - e. The backwash sewer connection is complete.
 - f. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.
 - g. The circulation pump(s) is/are operation.
 - h. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.
 - i. All necessary chemicals (Chlorine, Acid, Sodium Bicarbonate and Calcium Chloride) are on site and ready to use.
 - j. Obtain written approval from the Owner and the Architect.

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- C. Contractor accepts all liability from damage done to the pool plaster if the pool(s) or spa(s) is (are) plaster before the completion of the above listed items or without the written approval of the Owner and the Architect.

D. **POOL PLASTER AUTHORIZATION FORM:**

1. The pool(s) and or spa(s) at Las Palmas Pool is/are hereby approved for the installation of the pool plaster. Pursuant to the requirements of specification section 13 11 05, paragraph 3.03.

Owner

Date

Architect / Project Manager

Date

E. **Preparation:**

1. Do not apply plaster over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to the formation of a durable plaster finish.
2. Consult with manufacturer on application to specific surfaces being treated. Follow manufacturer's recommendation for curing of cast-in-place concrete or shotcrete surfaces prior to application of plaster.
3. Protect ceramic tile, decking, deck equipment, gratings, fittings and other items by suitable covering or masking.
4. Mask or remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures and similar items in place not to receive pool plaster. Following completion of plaster for each space or area remove masking. Re-install all removed items utilizing workers skilled in the trades involved.

F. **Application:**

1. Finish shall be applied to a uniform thickness of 3/8" to 1/2" over the entire surface. The walls shall be scratch-coated followed by a finish coat. Material applied to the floor after the walls have been applied shall be accelerated to assure uniform setting time throughout the pool surface.
2. Float the plaster to a uniform plane and trowel to a smooth, dense, impervious surface using extreme care to avoid stains.
3. Take special care in finishing around pool fittings, making sure to mask off or plug openings so as not to fill such openings with excess plaster. Be certain to

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completely enclose pool fittings with plaster to insure a leak-proof seal around pipes, fittings, lights, anchors, etc.

4. Accurately interface with the finish planes of items installed by other trades.
5. Quartz and pebble plaster finish is to be applied by a licensed applicator as approved by the manufacturer, and in accordance with manufacturer's training.

3.04 CURING

- A. Preparation: Anticipate the need for required equipment and have all such equipment immediately available for use upon completion of pool plastering.
- B. Pool Filling:
 1. After the plaster has sufficiently dried and before drying has proceeded to a damaging point, cure the plaster by gradually filling the pool with water, preventing all damage to finished plaster surfaces.
 2. Flow the water continuously until the pool is filled.
 3. When the weather is hot and/or water pressure is low, keep the pool walls damp while the pool is filling.
 4. Coordinate with Contractor to ensure that the pool is continuously monitored while filling to prevent overflow.

3.05 EQUIPMENT ACTIVATION

- A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.
- B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure that the plaster is carefully maintained after the initial fourteen day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen day period.
- C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

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3.06 CLEAN-UP

- A. Upon completion of swimming pool plaster, remove all materials, equipment and debris occasioned by this Work and leave the job site in a clean and presentable condition. Perform all such clean-up to the approval of the Owner's Representative.

3.07 WARRANTY

- A. All applicators must provide a minimum of five (5) year warranty for application and workmanship additional to the manufacturer's warranty for product.

END OF SECTION

SECTION 13 11 06

SWIMMING POOL EQUIPMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Swimming pool equipment items required for this Work as indicated on the Drawings and specified herein.

1.02 QUALITY ASSURANCE

- A. Qualifications of Workers:
 - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
 - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
 - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. All equipment supplied or work performed shall comply with regulations governing public swimming pools and spas as contained within Chapter 31 of California Building Code, latest edition.

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1.03 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitution shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
 - 1. Swimming Pool Fittings as specified in Article 2.01 of this Section.
 - 2. Swimming Pool Deck and Mechanical Equipment as specified in Article 2.02 of this Section.
- C. Submit proof of qualifications as specified in Article 1.02.A of this Section.
- D. The equipment shown on the plans represent the first listed items in the technical specifications. The Contractor shall be responsible for all required field coordination and installation of any approved equal product to provide a fully working and warranted system. The Contractor shall submit detailed shop drawings for any products used other than the first listed specified items. Contractor provided shop drawings shall include details and quality equal to the original plans and construction documents. The Contractor shall provide any and all required engineering including but not limited to structural and anchorage requirements for any proposed equipment other than the first listed specified equipment. The Contractor is responsible to provide a factory certified representative(s) to start-up and provide on-site training for all swimming pool mechanical equipment provided.

1.04 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect swimming pool equipment items before, during and after installation and to protect the installed work specified in other Sections.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative.

PART 2 - PRODUCTS

2.01 SAFETY EQUIPMENT

- A. Pool Safety Signs: As required by the Department of Health. Submittal required. Placement at the pool site shall be in conformance with Health Department Inspector. One (1) set minimum

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2.02 FITTINGS

- A. Activity Pool: Main Drain Frame & Grate (18 x 18 inch) 'Lawson Aquatics' Super Sump, Model #MLD-FG-1818 Two (2) required. 'Hayward' 1-1/2" collector tubes #SP1056 and 'Hayward' 1-1/2" hydrostatic relief valves #SP1055, one per main drain sump. Swimming Pool: Sump and Grate. DalMax 18 x 36 inch. DALMAX-SG-1836. Two (2) total. 'Hayward' 1-1/2" collector tubes #SP1056 and 'Hayward' 1-1/2" hydrostatic relief valves #SP1055, one per main drain sump. Contractor shall provide to the Owner a Certificate of Compliance, signed by a licensed design professional, for main drain sump(s) and frame(s) and grate(s), as required by the Virginia Graeme Baker Act.
- B. Floor Inlets 1-1/2" Adjustable: StaRite #08429-0000, United Industries, or approved equal. Fifty-five (5) required.
- C. Swimming Pool Underwater Lights: 'PureWhite LED' #LPL-F5W-120-100 (100' cord) with polished stainless steel face rings, 87 watt lamps and LWC (J & J Electronics); provide stainless steel light niches, #78210600 with 1" rear hubs, 'Pentair' or approved equal. Twenty-five (25) required.
- D. Junction Box for Underwater Lights, completed with strain reliefs: Hydrel #1719, Appleton or approved equal. Thirteen (13) required.

2.03 DECK EQUIPMENT

- A. Starting Platform Anchors: KDI-Paragon 'Competitor' #23103DW, 6" deep ('Competitor' #23140DW, 10" deep), no known equal. Twenty-six (26) required. 'Competitor' #23074, cover for dual wedge, 'Competitor' #23303, cover removal tool.
- B. Adjustable Starting Platforms: Track Start Competitor, Side Step #24515, Track Start Competitor Long Reach, no known equal. Furnish complete with covers. Eighteen (18) required.
- C. Stanchion Sockets: 1.90" I.D. Bronze. KDI-Paragon 38201TC, no known equal. Eight (8) required.
- D. Stanchion Posts: 1.90" O.D. x .145 wall. KDI-Paragon #38106 8' post, eight (8) # #38301 hook and collar, no known equal.
- E. Commercial Cup Anchor: KDI-Paragon #70316SE, Spectrum #58316 or equal. Fifty-eight (58) required.
- F. Lane Line Anchors: Heavy eye bolt with insert. KDI-Paragon #70317/18 or equal. Ten (10), in 50-M Direction. Twenty (20) in 25-Yard direction.

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- G. Racing Lanes, 25 Yard: Anti-wave with super tensioner, no known equal. Verify color with Owner's Representative prior to ordering. twenty (20) required. Provide vinyl covered stainless steel lane line extensions. Two (2) per lane line. Provide two (2) lane lines for water polo in 25 yard direction. 50-Meter: Antiwave with super tensioner, no known equal. Verify color with Owner's Representative prior to ordering. Ten (10) required. Provide vinyl covered stainless steel lane line extensions. Two (2) per lane line.
- H. Racing Lane Reel with Cover: KDI-Paragon #75101SS with cover #75133, no known equal. Contractor to verify model number for existing. Purchase same model and brand as existing. Four (4) new required. Furnish complete with covers for new and existing. Seven (7) total.
- I. Stationary Water Polo Goals: Anti-Wave #AQ0550, no known equal. Furnish complete with anchors and nets. One (1) pair required.
- J. Disabled Lift: Aqua Creek Mighty 400 F-MTY400 (350 lb. min and 400 lb. max lifting capacity) self-operated, or approved equal. Furnish complete with anchors, cover, extra battery pack and transporter cart. All parts and accessories shall be 'Coastal Gray'. One (1) required.
- K. Backstroke Pennants: 'Champion' 3/16" diameter vinyl coated cable #50-175, 'Champion' hardware package #53-030, and 'Champion' 12" x 18" vinyl coated polyester pennants #53-020, Lincoln Equipment, Knorr Systems or equal. Two (2) in 50-Meter direction. Two (2) in 25-yard direction.
- L. Cross-Braced Ladder: Paragon #42123 Custom, no known equal. Four (4) required.
- M. Handrail: KDI-Paragon #34203 3 bend, 1.90" O.D. x .065" wall. One (1) required.

2.05 FILTER

- A. Replace existing swimming pool and activity pool filter backwash valves, filter seals, internal laterals, sand media, backwash controller, and ½ HP backwash booster pump for each pool system.

2.06 CHLORINE FEED PUMP

- A. Remove and replace swimming pool and activity pool chlorine feed pumps. Provide two (2) new feed pumps shall be 'LMI' #SD43-88P-KSI; 288 GPD @ 15 PSI with FRP shelf brackets. Hard pipe to point of injection for activity pool and swimming pool.

2.10 ACID FEED PUMP

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- A. Remove and replace swimming pool and activity pool acid feed pump. Provide new 'Stenner' #45M-5 acid feed pump(s) rated at 50 GPD @ 25 PSI with FRP shelf brackets. Hard pipe to point of injection for activity pool and swimming pool. Recharge existing vapor recover system to acid storage tank.

2.11 BACKWASH

- A. Remove and replace all existing gauges including backwash gauges, filter gauges, pressure and vacuum gauges complete in mechanical room. Contractor shall field verify quantity and location

2.12 ACTIVITY BOOSTER PUMP

- A. Remove and replace activity pool booster pump with new 'Pentair' #EQK-500, rated at 210 GPM @ 70 ft. TDH. One (1) total.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 - 1. Prior to installing the items of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.
 - 2. Verify that the swimming pool equipment items may be installed in strict accordance with original design, pertinent codes and regulations, and the manufacturers' recommendations.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify the Owner's Representative.
 - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies are fully resolved.
 - 3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Installer of existing conditions as fit and proper to receive its Work.

3.02 INSTALLATION

- A. Supply and install items of swimming pool equipment in strict accordance with applicable codes and regulations, the original design, and the manufacturer's published recommendations, anchoring firmly and securely for long life under hard use.

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- B. Coordinate with other trades to insure all imbedded items are set plumb and flush. Railing ends must have anchor sockets and escutcheon plates. Be certain that deck equipment and railings are properly bonded prior to imbedding.
- C. All equipment shall be braced and/or anchored to resist a horizontal force acting in any direction using the criteria shown on the Drawings.

3.03 INSTRUCTION

- A. The Contractor shall provide a factory certified representative(s) to start-up and certify proper installation, operation and full warranty status of all swimming pool mechanical equipment. The Contractor shall provide not less than two 8-hour days of on-site training for facility staff in the operation and maintenance of the swimming pool mechanical equipment and systems. The two 8-hour days shall be separated by a minimum of seven calendar days and be completed within the 14-day start-up period.

3.04 EQUIPMENT ACTIVATION

- A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.
- B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure that the plaster is carefully maintained after the initial fourteen-day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen-day period.
- C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

3.05 CLEAN-UP

- A. Upon completion of swimming pool equipment, remove all debris, materials and equipment occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 07

SWIMMING POOL MECHANICAL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Swimming pool mechanical piping as indicated on the Drawings for circulation and filtration systems, pool water heating systems, chemical control systems, booster pump systems and appurtenances.
- B. Domestic water system from points of connection within swimming pool mechanical equipment room to make-up water system.
- C. Filter backwash piping to point of connection with backwash retention pit as required.

1.02 QUALITY ASSURANCE

- A. Qualifications of Workers:
 - 1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
 - 2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
 - 3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.
- B. Standards:
 - 1. All equipment supplied or work performed shall comply with Chapter 31 of California Building Code, latest edition.

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2. Work shall be performed in accordance with the applicable editions of all National, State and local codes, laws, regulations and ordinances, including the following:
 - a. American National Standards Institute (ANSI).
 - b. American Society for Testing Materials (ASTM).
 - c. American Waterworks Association (AWWA).
 - d. American Welding Society (AWS).
3. Do not construe anything in the Drawings or Specifications to permit Work not conforming to these requirements.

1.03 SUBMITTALS AND SUBSTITUTIONS

- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitutions shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
 1. Pipe and Fittings as specified in Article 2.02 of this Section.
 2. Valves as specified in Article 2.03 of this Section.
 3. Pressure / Vacuum Gauges as specified in Article 2.04 of this Section.
 4. Pipe Hangers and Supports as specified in Article 2.05 of this Section.
 5. Sleeves and Waterstops as specified in Article 2.06 of this Section.
- C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect swimming pool mechanical items before, during and after installation and to protect the installed Work specified in other Sections.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

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1.05 JOB CONDITIONS

- A. Cooperate with entities performing Work specified in other Sections to so that no conflict of new construction or occupied space may occur. Should any installation Work be done without such craft coordination, that Work so installed shall be removed and re-installed.

PART 2 - PRODUCTS

2.01 PRODUCT QUALITY

- A. Materials and equipment shall be new, of the best quality for the purpose intended, and shall be clearly marked with the manufacturer's name and nameplate data or stamp and rating. As far as practicable, materials and equipment shall be of one manufacturer.

2.02 PIPE AND FITTINGS

- A. PVC Schedule 40: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be white. Dura, Lasco, or approved equal.
- B. PVC Schedule 80: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be gray. Dura, Lasco, or approved equal.
- C. CPVC Schedule 80 Influent/Effluent Heater Piping: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be gray. Dura, or Lasco.
- D. PVC DR25: Conforming to ATSM D-1784, use with epoxy coated bell and spigot-type fittings or epoxy coated mechanical joint by flange adapters with epoxy coated cast iron fittings as specified in Article 2.02 (F), below. Johns-Manville "Big Blue", Diamond Plastics, or approved equal.
- E. Copper Tubing: ASTM Specification B-88, hard drawn, with ANSI Standard B16.22 wrot copper fittings.
- F. Steel: ASTM Specification A-120, Schedule 40 black or galvanized pipe with ASTM A-47 150 lb. banded malleable iron threaded fittings.
- G. Cast Iron: ASTM Specification B16.1, cast iron flanged fittings, provide epoxy coating as required for use with chlorinated water.

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2.03 VALVES

A. Ball Valves:

1. For pool system: True-Union design, PTFE seat material with FPM or FKM Double O-ring stem seals, locking handle, NSF certified. PVC schedule 80 body for below grade installation. PVC Schedule 80 body for above grade installation. Furnish ball valves on all pipe diameters 2 ½" or less with a rating of at least 200psi at 73° F, Asahi, Ipx or Nibco.
2. For copper pipe system: 3-piece full-port Bronze body valve with Teflon seat, 'Apollo', 'Nibco' or approved equal.

B. Butterfly Valves:

1. Epoxy coated cast or ductile iron body, 316 stainless steel disc and stem, viton seat material, furnish hand wheel/gear operators on all valves 8" and larger. DeZurick, Keystone, Ipx or equal.
2. PVC body, PVC disc and EPDM construction suitable for chlorinated water applications. Stem shall be of 316 stainless steel and non-wetted. Valves shall be self-gasketed design with a convex sealing arrangement. Valves 1-1/2" – 10" shall be rated to 150 psi and 12" valves shall be rated to 100 psi at 70°F. Asahi Pool-Pro, no known equal.

C. Check Valves: Wafer-type, epoxy coated cast or ductile iron body, 316 stainless steel plates and shaft, viton seat material. Centerline, Metraflex, or approved equal.

D. Surge Chamber Float Valve: EPD #2-0020-019 Float Control Valve, " line size, as manufactured by Environmental Products Division of Doughboy Recreational, Rancho Cucamonga, CA, no known equal.

E. Surge Chamber Isolation Valve: Butterfly valve, tapped lug style, bronze body, stainless steel stem, bronze disc, phenolic back-up ring, EPT seat material. Provide stainless steel shaft extension, shaft housing and tool operator located 2'-0" above floor level with deck access grate as required. DeZurick, Keystone, Asahi, Spears, Ipx or approved equal.

F. RP Backflow Preventer: Febco #835-B for 2" and smaller; #825 for 2-1/2" and larger. Febco, Watts, or approved equal.

G. Make-up Water Control: Cla-Val make-up water control valve with ductile iron body/cover, bronze trim, globe pattern, Buna-N rubber seals. Pilot system materials to consist of bronze/brass with stainless steel wetted parts and Buna-N rubber seals.

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System to include: 100-01 Hytrol valve, CF1-C1KX float control, X46A flow clean strainers, and copper tubing with brass fittings. Float linkage and float rod shall be PVC and brass. Base plate shall be 316 stainless steel. The plastic float shall be provided with 8' PVC rod and stops and a brass counter weight. Provide model #124-01AKX available KSI (714) 754-044.

2.04 PRESSURE / VACUUM GAUGES

- A. Furnish and install pressure and vacuum gauges on the discharge and suction sides of all pumps. 2" or 2 1/2" diameter dial, bottom connection, chrome ring, shut-off cock and snubber. Ranges shall be selected to indicate between mid-point and two-thirds of maximum range under design conditions. Marsh, Trerice, or approved equal.

2.05 PIPE HANGERS AND SUPPORTS

- A. General:

- 1. The requirements of this Section relates to various requirements of the Agreement, General and Supplementary Conditions, Specifications, Drawings, and modifying documents which are part of the Construction Contract. Responsibility for coordination of all such applicable requirements will be that of the Contractor.

- B. Description:

- 1. This section provides guidelines and limitations for the support of all mechanical, electrical, plumbing or architectural items from the building structure, and for the seismic bracing of such items.
 - 2. Design and install all support and bracing systems as required for the swimming pool systems. Provide for attachment to portions of the building structure capable of bearing the loads imposed. Design these systems to not overstress the building structure.

- C. Quality Assurance:

- 1. Design and install all support systems to comply with the requirements of the 2019 California Building Code, Chapter 16A.
 - 2. Seismic bracing is to be designed by a professional engineer licensed in the State of California.
 - 3. For the seismic bracing of mechanical, electrical and plumbing system, refer to "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping

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Systems" by Sheet Metal and Air conditioning Contractors National Association, Inc., (SMACNA) for guidelines.

D. Submittals:

1. Submit shop drawings for all substructures and attachment methods.
2. Submit proposed alternative methods of attachment for review and approval by the Architects, prior to deviating from the requirements given below.
3. For all pipe hangers and support systems, submit structural calculations and details which include all resultant forces applied to the building structure and are prepared and signed by the Contractor's licensed California professional engineer. Calculations will be reviewed for compliance with design criteria, not for arithmetic.

E. Materials:

1. Use Kin-Line, Grinnel, or approved equal.
2. Support all pipelines individually with hangers, each branch having at least one hanger. Lateral brace as noted and required.
3. Support piping near floor with steel stanchions welded to end plates secured to pipe and floor.
4. Support vertical piping at each floor level. Install coupling in piping at each support. Coupling shall rest on and transmit load to support. Isolate copper from steel supports with vinyl electrician's tape around pipe and coupling.
5. Use Stoneman "Trisolator," Unistrut, or approved equal, isolators at each hanger and other support points on bare copper tubing system.
6. For PVC pipe, space hangers four (4) feet apart for pipe sizes 1" and under, five (5) feet apart for pipe sizes 1-1/4" to 2", and six (6) feet apart for pipe sizes over 2". Space hangers for horizontal pipes at a maximum of six (6) feet for copper 2" and smaller and for steel 1-1/4" and smaller; ten (10) feet for copper 2-1/2" and larger and for steel 1-1/2" and larger.
7. Size hanger rods, screws, bolts, nuts, etc., according to manufacturer's sizing charts.
8. Trapeze hangers may be used for parallel lines.
9. Use galvanized or cadmium plated hangers, attachments, rods, nuts, bolts, and other accessories in pool mechanical room, high humidity areas, or where exposed to weather. Hot dip galvanize all items which are not factory furnished. Plating for hinged movements must be done at the factory.
10. Lateral Bracing: To prevent swaying of the piping systems, provide angle iron bracing and anchor into wall or overhead framing. Piping shall be braced or anchored in such a way as to resist a horizontal force of 50% of its operating weight in any direction.
11. Do not use wire or other makeshift devices for hangers.

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12. Furnish all substructures and fasteners required to comply with the limitations given below. Use material as specified in the various sections and as appropriate to their use.

F. Guidelines & Limitations:

1. Each Contractor will coordinate the load requirements from all subcontractors so that no combination of loads overstresses the building structure or exceed the limitations given below.
2. Concrete Structure:
 - a. Support all loads hung from concrete structure with cast-in-place inserts, unless drilled-in anchors are specifically approved in writing prior to placing the concrete.
 - b. Concrete anchors must not penetrate into reinforcing bars. Where the anchors boring indicates the presence of reinforcing bar, patch hole with an epoxy type grout and relocate anchor 12 diameters away.
 - c. Individual expansion anchors cannot support any loads greater than 300 pounds or manufacturer's specified load capacity without approval.
3. Steel Structure:
 - a. Hang no more than 20 pounds per metal deck rib in any span.
 - b. At beams, hang all beam loads greater than 40 pounds concentric to beam, not off the flanges.
 - c. Attached no loads to the beams or girders greater than the following without specific approval from the architect;
 - i. Roof beams and girders: 300 pound point load or 600 pound total load for a single span.

G. Seismic Bracing:

1. Design and install seismic bracing to not ground out vibration and sound isolation systems.
2. All items of mechanical and electrical equipment 60" or more in height are to be seismically braced whether such bracing is shown or not.

2.06 SLEEVES AND WATERSTOPS

- A. Provide sleeves where work of this Section passes through fire rated partitions, floors and ceilings, concrete slabs or exterior of structure. Caulk clearance space using sealant appropriate for application in conformance with manufacturer's

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recommendations and Title 24 of California Code of Regulations. 3m, Dow Corning, or approved equal. In lieu of sleeves and caulking, "Link Seal" products may be used.

- B. Provide prefabricated waterstops as indicated on the Drawings at all pipe penetrations through structures containing stored water (i.e., swimming pools, balance/surge tanks, etc.) to insure leak-proof seals.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

- 1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that such work is complete to the point where this installation may properly commence.
- 2. Verify that items of this Section may be installed in accordance with the original design and referenced standards.

B. Discrepancies:

- 1. In the event of discrepancy, immediately notify the Owner's Representative.
- 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
- 3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive his work.

3.02 ABBREVIATIONS AND SYMBOLS

- A. Abbreviations and symbols on the Drawings are those most commonly used. Obtain clarification from the Owner's Representative on any questionable items before bid.

3.03 GENERAL PIPING REQUIREMENTS

- A. Size any section of pipe for which size is not indicated or any intermediate section erroneously shown undersized the same size as the largest pipe connecting to it. Sizes listed are nominal.
- B. Cut pipe accurately to job measurements and install without springing or forcing, true to line and grade, generally square with building and/or structures and adequately supported to prevent undue stress on pipe, fittings and accessories.

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- C. Make changes of direction with manufactured fittings. Street ells, bushings, reducing flanges, close nipples or bending of pipe is not allowed.
- D. Use great care to install piping in accordance with best practice. Plastic pipe shall be "snaked" in trenches to allow for thermal expansion.
- E. All above grade, below grade and buried or imbedded PVC shall be installed using solvent weld fittings. Also, each and every fitting and pipe end shall be prepared with solvent primer. Fittings shall be joined individually and with enough time between assembly of adjacent joints to allow them to seal solidly. After joining, an even ring of primer must be visible around the entire fitting. If any fittings are installed without visible primer, the fitting shall be removed and discarded and piping recut, rechanfered and joint made up again using a new fitting. All procedures, methods and techniques used to make up solvent weld joints shall be in strict accordance with manufacturer's recommendations.
- F. Arrange pipe and hangers to allow for expansion, contraction and structural settlement. No pipe shall contact structure except penetrations as shown on the Drawings.
- G. Provide dielectric connections between copper and dissimilar metals. In copper systems, threaded piping including connections to equipment shall be brass pipe and fittings. Install dielectric connections in vertical sections of piping only.
- H. Run pipe full size through shut-off valves, balancing valves, etc. Change pipe size within three (3) pipe diameters of final connection to control valves, fixtures and other equipment.
- I. Provide unions or flanges at connections to equipment, on service side of valves and elsewhere as required to facilitate ease of maintenance.
- J. Locate equipment shut-off valves as close to equipment as possible maintaining easy valve access.
- K. Make all connections between domestic water systems and equipment or face piping with approved backflow prevention devices as required.
- L. All PVC pipe exposed to direct sunlight shall be painted with two coats of Exterior Acrylic Semi-gloss Paint, Sherwin Williams or equal. Color to be selected by the Architect. Prior to painting the PVC pipes, the exterior of all PVC pipes shall be wiped with Methyl Ethyl Ketone, or an approved equal, to remove the glaze from the pipes.

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- M. The Main Drain pipe must run either level or uphill from the main drain sump, through the surge pit (if applicable) and then to the circulation pump.

3.04 TRENCH EXCAVATION AND BACKFILL

A. Excavation:

1. Excavate and backfill trenches as required for the Work of this Section. Conform to requirements of Section 13 11 01.
2. The Contractor shall perform all excavation of every description and of whatever materials encountered, to the depths indicated on the Drawings or as necessary. The Contractor shall dispose of the excavated materials not required or suitable for backfill as directed, and shall perform such grading as may be necessary to prevent surface water from flowing into the trenches. The Contractor shall provide adequate equipment for the removal of storm or subsurface waters, which may accumulate in the excavated areas.

B. Trenching:

1. Excavate trenches to lines and grades as indicated on the Drawings and with banks as nearly vertical as practicable.
2. Bottoms of trenches shall be accurately graded to provide uniform bearing on undisturbed soil for the entire length of each section of pipe.
3. The width of the trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench wall shall not exceed 8" on either side of the pipe. The width of trench above the top of pipe may be wider if necessary.
4. Over-depth excavations shall be filled with tamped sand to required grades.
5. Excavations of five (5) feet or more in depth shall be shored or supported in conformance with rules, and regulations of State and Federal Governments. Shoring shall be constructed, maintained and removed in a manner to prevent caving of the excavation walls or other load on the pipe.

C. Backfilling:

1. Material for backfilling of pipes shall be approved granular material less than two (2) inches in diameter obtained from the excavation. No material of a perishable, spongy or otherwise unsuitable nature shall be used as backfill.
2. Backfilling of pipe trenches shall commence immediately after installation and testing to preclude damage to the installed pipe. Backfill around pipe shall be carefully placed so as not to displace or damage the pipe, and shall be carried up symmetrically on each side of the pipe to one foot above the top of the

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pipe. The material shall be carefully compacted or consolidated before additional backfill is placed.

3. Backfill above an elevation of one foot above the top of pipe in conformance with requirements of Section 131101. Material for balance of backfill shall be approved granular material less than six (6) inches in diameter taken from the excavation.
4. Unless otherwise indicated on the Drawings, all pipe shall have a minimum of eighteen (18) inches of cover.

3.05 GENERAL EQUIPMENT REQUIREMENTS

- A. Position equipment to result in good appearance and easy access to all components for maintenance and repairs.
- B. Install piping, flues, breeching and ducts so that they do not interfere with equipment access.
- C. Install level, secure and out of moisture. Provide shims, anchors, support straps, angles, grouted bases, or other items as required to accomplish proper installation.
- D. All screws, nuts, bolts and washers shall be galvanized, cadmium plated or stainless steel. After fabrication, hot-dip galvanize unfinished ferrous items for outdoor, below grade or other use subject to moisture.
- E. Extend 1/2" Schedule 40 black steel pipe lubrication tubes from all hard to reach locations to front of equipment or to access points. Terminate with proper type of lubrication fitting.

3.06 VALVES AND STRAINERS

- A. If no shut-off is indicated, provide ball valves at inlet connections and balance valves at outlet connections to fixtures and equipment. Provide proper valve trim for service intended.
- B. Use no solder end valves unless noted otherwise; provide adapters in copper tubing systems.
- C. Locate valves with stems above horizontal plane of pipe. In general, locate valves within six (6) feet of floor, out from under equipment, in accessible locations with adequate clearance around hand wheels or levers for easy operation.
- D. Provide all valves, cocks and strainers, full pipe size unless indicated otherwise.

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- E. Provide hand wheel operators on all valves 6" and larger, under 6" lever operators may be used.
- F. Provide tool operated valve with stainless steel shaft extension and 'on deck' tool operation for surge chamber butterfly isolation valve.

3.07 IDENTIFICATION OF PIPING

- A. Identify each valve by a numbered brass tag with hole and brass chain mounted on valve stem or handle. Tag to be a minimum of 1" in diameter and numbers at least 1/4" high stamped into tag. Valves and plumbing lines shall be labeled clearly with the source or destination descriptions.
- B. Install an identification chart in a plastic or glass framed enclosure, which schematically illustrates the proper operation of all piping systems and indicates number and location of all valves and control devices within the system.
- C. The direction of flow for the recirculation equipment shall be labeled clearly with directional symbols such as arrows on all piping in the equipment area. Where the recirculation equipment for more than one pool is located on site, the equipment shall be marked as to which pool the system serves.

3.08 TESTS

- A. Perform tests in presence of Owner's Representative with no pressure loss or noticeable leaks.
- B. Do not include valves and equipment in tests. Include connection to previously tested sections if systems are tested in sections.
- C. Perform tests as follows:

<u>System</u>	<u>Test</u>	<u>Test</u>	<u>Duration</u>
	<u>Pressure</u>	<u>Medium</u>	
Skimmer Lines and Lawson Main Drain sump lines	20psig	Water*	4 hours
Pool Piping	50 psig	Water*	4 hours
Pool Main Drains	30 psig	Water*	4 hours
Domestic Water	150 psig	Water*	4 hours

***Never test PVC pipe or fittings with air or other gases, always use water.**

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3.09 PIPE MATERIAL APPLICATION

- A. PVC Schedule 40: Below grade swimming pool piping and domestic water piping up to 12" line size; use standard solvent weld fittings.
- B. PVC Schedule 80: Above grade swimming pool piping up to 12" line size; use solvent weld Schedule 80 or epoxy coated cast iron fittings.
- C. Type L Hard Copper: Above grade domestic water piping.
- D. CPVC Schedule 80; Pool Heater Piping.
- E. Schedule 40 Steel: Natural gas piping.

3.10 CUTTING AND DRILLING

- A. Cutting or drilling necessary for installation of Work of this Section shall be done only with approval of Owner's Representative.

3.11 CLOSING-IN OF UNINSPECTED WORK

- A. Do not cover or enclose Work before testing and inspection. Re-open Work prematurely closed and restore all Work damaged.

3.12 QUIETNESS

- A. Quietness is a requirement. Eliminate noise, other than that caused by specified equipment operating at optimum conditions, as directed by Owner's Representative.

3.13 FLUSHING OF LINES

- A. Flush or blow out pipes free from foreign substances before installing valves, stops or making final connections. Clean piping systems of dirt and dust prior to initial start-up.
- B. Just prior to plastering the pool, under the observations of the IOR, the pool mechanical system shall be flushed using the pool circulation pump. Circulate water through the mechanical system until the effluent water from the pool return heads runs clean.

3.14 CLEAN-UP

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- A. After all Work has been tested and approved, the Swimming Pool Subcontractor shall thoroughly clean all parts of the equipment installations, including all pool pipe and fittings in the pool mechanical room. Exposed parts shall be cleaned of cement, plaster and other materials and all grease and oil spots removed with solvent.
- B. The Swimming Pool Subcontractor shall remove debris from the Project site. Cartons, boxes, packing crates and excess materials not used, occasioned by this work shall be disposed of to the satisfaction of the Owner's Representative.
- C. If the above requirements of clean up are not performed to the satisfaction of the Owner's Representative, the Owner reserves the right to order the work done, the cost of which shall be borne by the Swimming Pool Subcontractor.

END OF SECTION

SECTION 13 11 08

SWIMMING POOL ELECTRICAL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide labor, materials and equipment as required to install the swimming pool electrical system including but not limited to:
 - 1. A complete and operable system of service equipment, switchboards, panelboards, conduits, switches, time clocks and wiring for power and lighting, motor control centers.
 - 2. Junction and/or pull boxes, conduits, disconnects, starters, contactors, wiring and connection of all motors and mechanical equipment, including connection and wiring of line voltage controls associated with the mechanical systems.
 - 3. Swimming pool underwater lighting systems.
 - 4. Swimming pool timing system outlets and scoreboard.
 - 5. Complete grounding system as required and shown on the Drawings.
 - 6. Complete equipotential bonding system as required and shown on the Drawings.
 - 7. Adjusting and preliminary operation of the completed electrical system as described in Article 3.06, A of this Section.

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8. Cleaning of all completed Work and installation adjustment of all trim and decorative items.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.
2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.
3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Ordinances and Codes: Materials and construction shall conform with all applicable code requirements, including:

1. National Electrical Code, latest edition; Electrical Safety Orders of the State of California; Department of Industrial Relations; regulations of the State Fire Marshal; rules and regulations of the Board of Underwriters of the Pacific, UL 50, 50E and NEMA 250 rating. 2. Chapter 31 of California Building Code, latest edition.

C. Verification of Conditions:

1. The locations shown on the Drawings are diagrammatic only and the exact finish location of equipment and materials cannot be indicated. Therefore, locations of all Work and equipment shall be verified to avoid interferences, preserve head room and keep openings and passageways clear. Changes shall be made in locations of equipment and materials which may be necessary to accomplish these purposes.

D. Preliminary Operations and Testing:

1. Motor driven equipment shall be tested for correct rotation and completion of all connections.

1.03 SUBMITTALS AND SUBSTITUTIONS

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- A. Provide submittals in conformance with the requirements of Section 01 33 00. Requests for substitutions shall conform with requirements of Article 1.10.A of Section 13 11 00.
- B. Required submittals include:
 - 1. Conduit and Fittings as specified in Article 2.02 of this Section.
 - 2. Panelboards as specified in Article 2.08 of this Section.
 - 3. Circuit Breakers as specified in Article 2.09 of this Section.
 - 4. Motor Starters as specified in Article 2.12 and 2.13 of this Section.
 - 5. Fuses as specified in Article 2.15 of this Section.
 - 6. Time Clocks as specified in Article 2.16 of this Section.
 - 7. Ground Fault Circuit Interrupters as specified in Article 2.17 of this Section.
 - 8. NEMA Type 4x corrosion resistant UL 50, 50E & NEMA 250 rating for enclosures, cabinets and boxes as specified in Article 2.11 & 2.18 of this Section.
- C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

- A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.
- B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.
- C. Protection: Use all means necessary to protect swimming pool electrical materials before, during, and after installation and to protect the installed Work specified in other Sections.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials shall be new, in unbroken packages and bear the U.L. label of approval.
- B. Equipment of one type shall be by same manufacturer. One type of equipment for classifications such as:
 - 1. Switchboards, panels, buss duct, disconnect switches and allied items.
 - 2. Conduit.
 - 3. Wire.
 - 4. Conduit fittings.

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5. Fixtures of the same general type.
6. Wiring devices.

2.02 CONDUIT AND FITTINGS

- A. Conduit within or under buildings or where exposed outdoors shall be rigid metal threaded, hot dipped galvanized, or U.L. approved plastic except where noted otherwise on the Drawings. Metallic conduit shall be of the same metal between outlets or terminals.
- B. Use flexible metallic conduit only for short connections of motors and where specifically called for on Drawings. Maximum length shall be 40". Use only liquid tight flexible metal conduit. Install an unbroken #12 AWG insulated copper grounding conductor in each liquid tight flexible conduit with permanent connection at motor junction box and service panel ground.
- C. Protect, before installation, metallic conduit runs in all slabs laid on grade or in contact with the earth or exposed in damp locations, with two (2) heavy coats of asphaltum rust-resisting compound.
- D. Encase conduits 2-1/2" or larger run underground, outside, or under buildings, in concrete envelopes a minimum of 3" thick, except as indicated otherwise on Drawings or stubouts. Conduits 2 and smaller laid 18" below finish surface in soil.
- E. Low voltage runs underground outside buildings, 1-1/4" or smaller, may be G.I. or sherardized steel conduit, with machine applied wrapping equal to double wrap or Scotch-Wrap #50 tape, half lapped and quadrupled at joints in lieu of concrete encasement.
- F. Service conduits through foundations or concrete members shall run through metal sleeves with adequate clearances for full movement of the conduit. Do not run conduits through footings.
- G. Secure conduits run exposed on surfaces with one hole heavy-duty straps or fasten with matching fittings to inserts or trapezes, parallel to building walls and ceilings.
- H. Cap all conduit or duct stub-outs with standard factory caps; except cap threaded steel conduit with B.I. water pipe caps in outdoor locations.
- I. Use conduit fittings as manufactured by Crouse-Hinds Company, Appleton Electric Co., or approved equal.
- J. Employ U.L. liquid tight fittings for use with liquid tight flexible metal conduit.

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- K. Use unions as manufactured by Appleton, O-Z/Gedney, or approved equal. The use of running threads will not be permitted.
- L. Exposed conduit and fittings in chemical rooms shall be nonmetallic rigid polyvinyl chloride, corrosion resistant rated suitable for installation in corrosive environments and in accordance with the latest NEC requirements.

2.03 EQUIPOTENTIAL BONDING/GROUNDING

- A. Bond together and ground to a common ground at a single point all metallic conduit, piping systems, pool reinforcing steel, metal parts of ladders, lifeguard stands, handrails and their supports and the like. The solid copper bonding conductor shall not be smaller than #8 copper.

2.04 WIRING CONNECTIONS

- A. Make connections without strain on conductors, allowing the conductors to take a natural position after connections or taps are made. Include all strand of wire in making the connection.
- B. Make connections for wiring by one of the following means:
 - 1. Make all taps or connections to conductors with compression type connectors except those smaller than #8 B&S gauge may have soldered connections. Solderless connections for #10 AWG or smaller may be used and shall be "Scotchlok", Buchanan, or approved equal. For #8 AWG or larger, they shall be T&B "LockTite", Burndy "Versitaps", or approved equal.
 - 2. All cable or conductor terminal lugs shall be Burndy "Quicklug", Ilco, or approved equal. Two piece stamped lugs and solder lugs will not be approved.
 - 3. Paint taped splices in damp or outdoor locations with two (2) coats of insulating paint.
 - 4. Tag all branch circuit wires with circuit number at the panelboard and at each point of use with linen or plastic tags.

2.05 CONDUCTORS

- A. Copper RHW or THW. Do not make splices between boxes.

2.06 COLOR CODING

- A. Neutrals (identified conductors shall be white).
- B. Phase conductors shall be red for phase B; blue for phase C.

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- C. Green shall be used for mechanical equipment and receptacle grounds only.

2.07 MOTOR WIRING

- A. Make final connections to motors with the required AWG (Minimum #12), Flamenol machine tool wire, 19 strand. Control wiring for equipment shall be Flamenol machine tool wire, 19 strand of required AWG. Provide corrosion resistant junction boxes at each item of equipment to change from standard building wiring to machine tool wire.
- B. Phase motors as proper in direction of rotation.

2.08 PANELBOARDS

- A. Panelboards shall be flush or surface mounting as indicated with circuit breakers as shown on panel schedule, hinged lockable doors, index card holders and proper bussing.
- B. Where indicated on the drawings, panelboards shall be furnished with subfeed breakers and/or lugs, split bussing, contractors, time switches, relays, etc., as required.
- C. All panelboards shall be keyed alike.
- D. All panelboard enclosures shall be corrosion resistant rated in accordance with the latest NEC requirements.
- E. Furnish corrosion resistant panelboard enclosures and terminal cabinets with Yale 46515 flush locks and LL806 keys except where indicated otherwise herein. Fasten the trim to panel boards and terminal cabinet by means of concealed, bolted or screwed fasteners accessible only when the door is open.
- F. Panelboards 208/120 volt, three phase, 4 wire, S/N or 120/240 volt, single phase, 3 wire, S/N.

Panelboard types as manufactured by:

Westinghouse
General Electric
Square D

Type B10B
Type NLAB
Type NQOB

- G. Panelboards for 480/277 volt, three panes, 4 wire, S/N.

Panelboard types as manufactured by:

Westinghouse
General Electric

Type Pow-R-Line 2
Type AE

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Square D
Sylvania
I.T.E.

Type NEHB
Type NH1B
Type Approved Equal

- H. Panelboard for bussing sizes thru 400 amp shall be 20" wide surface mounted type. Recess mounted type shall have a 20" wide (maximum) recess metal enclosure with trim plate cover extending 1" on all sides of enclosure. Depth shall be 5-3/4" nominal. Height of panel as required for devices.
- I. Provide 6" additional gutter space in all panels where double lugs are required, or where cable size exceeds bus size. Minimum bottom gutter space shall be 6" high. 12" additional gutter space may be required for aluminum feeders where used.
- J. Panelboards shown on the drawings with relays, time clocks or other control devices shall have a separate metal barriered compartment mounted above panel with separate hinged locking door to match panelboard. Provide mounting sub-base in cabinet for control devices and wiring terminal strips.
- K. Panelboard shall have a circuit index card holder removable type, with clear plastic cover. Index card shall have numbers imprinted to match circuit breaker numbers.

2.09 CIRCUIT BREAKERS

- A. Breakers shall have a minimum short circuit interrupting rating of 10,000A symmetrical for panelboard voltage thru 240 volt and 14000A for panelboards thru 600 volts or as specified on the drawings. In no case shall the interrupting rating be less than the bus withstand rating unless noted otherwise on the drawings.
- B. Circuit breakers as manufactured by the following companies only are acceptable:
 - 1. General Electric Company
 - 2. Square D Company
 - 3. Westinghouse Company
 - 4. I.T.E. Company
- C. Circuit breakers shall be arranged in the panels so that the breakers of the proper trip settings and numbers correspond to the numbering in the panel schedules on the drawings. Circuit numbers of breakers shall be black-on-white micarta tabs or other previously approved method. Circuit number tabs which can readily be changed from front of panel will not be accepted. Circuit number tabs shall not be attached to or be a part of the breaker.
- D. Where two or three pole breakers occur in the panels, they shall be common trip units. Single pole breakers with tie-bar between handles will not be accepted.

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- E. All circuit breakers shall be padlockable in the "off" position. Locking facilities shall be riveted or mechanically attached to the circuit breaker (submit sample for approval). Other means of attachment shall not be accepted without prior written approval of Architect.
- F. Where branch circuit breakers supply the power to motors and signal systems, the breakers shall be furnished with lockout clips, mounted in the "on" position. The breakers shall be able to trip automatically with lockout clips in place.
- G. Panelboard circuit breakers shall be bolt-on type.

2.10 BUSSING

- A. Bussing shall be rectangular cross section copper, or full length silver or tin-plated aluminum.
- B. Bussing shall be braced to withstand symmetrical short circuit ratings as follows or as noted on drawings. In no case shall bus short circuit bracing be less than specified circuit breakers.
- C. Each panelboard shall be equipped with a ground bus secured to the interior of the enclosure. The bus shall have a separate lug for each ground conductor. No more than one conductor shall be installed per lug.

2.11 POOL MECHANICAL EQUIPMENT ENCLOSURES, TERMINAL CABINETS & MISC CABINETS

- A. All pool mechanical equipment enclosures, terminal cabinets and miscellaneous cabinets in the pool mechanical room or chemical storage rooms shall be corrosion resistant rated in accordance with the latest NEC requirements. Enclosures and all cabinets shall be flush mounted (except where noted a surface) of the size indicated on the drawings, and complete with hinged lockable doors and the number of 2-way screw terminals required for termination of all conductors. Terminal cabinet locks to operated from same key used for panelboards. The trim to terminal cabinets shall be fastened by means of concealed bolted or screwed fasteners accessible behind door to terminal cabinets. Terminal cabinets shall have 5/8" plywood backing.
- B. Provide engraved nameplate on each enclosure and cabinet indicating its designation and system (i.e., Swimming Pool - Panel 'SP').

2.12 MOTOR CONTROL INDIVIDUAL STARTERS

- A. Manual Motor Starters:

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1. Provide flush or surface mounting manual motor starters with number of poles and size of thermal overload heaters as required for the motor being controlled (equipped with overload heaters, one for each motor lead). Back boxes shall be supplied with all flush mounting starters whether they are toggle type requiring only a 4" square outlet box or the larger type requiring a special box and cover designed to accept the particular unit. All box types shall be corrosion resistant rated in accordance with the latest NEC requirements.
2. Unless otherwise noted on the drawings, all manual starters for single phase motors, smaller than 1 h.p., shall be the compact toggle type. Manual starters for all single phase motors, 1 to 5 h.p., and all three phase motors up to 5 h.p. shall be the heavy duty type.
3. Where manual motor starter is shown with pilot light, the pilot light shall be installed in a separate outlet box adjacent to the starter outlet, and engraved nameplate in indicate function of pilot light.
4. The following motor starters as manufactured by:

Manufacturer	Single Phase 1HP and Below	Others
Arrow Hart	Type RL	Type LL
General Electric	CR 101	Class CR 1062
I.T.E.	Class C10, C11 or C12	Class C20
Square D Company	Class 2510, Type A	Class 2510, Type B & C
Westinghouse	Type MS	Type A100
Allen Bradley	Approved Equal	Approved Equal.

B. Individual Magnetic Motor Starters:

1. Magnetic motor starters shall be A.C. line voltage, across-the-line units in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.
2. All starters located outside of a building whether or not indicated shall be W.P. (weatherproof), and all starters noted W.P. shall be furnished in a corrosion resistant rated stainless steel enclosure in accordance with the latest NEC requirements.
3. Starter shall be horsepower rated for the motor controlled, and shall be equipped with properly sized overload elements. Every pole shall be with overload element.
4. Verify the exact motor current and voltage characteristics with the Contractor supplying the motor before installation of a starter.
5. Each starter shall be equipped with "Hand-Off-Auto" switch or stop-start pushbutton as required.
6. Coils shall be designed to operate on voltage indicated on control diagrams and have built-in-under the voltage release for coil circuit to drop motor starter off the line when the line voltage drops below normal operating voltage.

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7. The coil control circuit shall be independently fused, sized to protect coil.
8. Starters to be equipped with running pilot light indication with a "Push-to-Test" feature.
9. Magnetic starters shall have a minimum of two auxiliary contacts. Additional auxiliary contacts shall be provided as required to comply with the requirements of the wiring diagrams on the electrical and mechanical drawings and the description of the function in the Mechanical Section of the Specifications.
10. Starters shall comply with NEMA standards, size and horsepower ratings as indicated on drawings.
11. The following types of magnetic motor starters as manufactured by:

Manufacture	Type
General Electric	Class CR 106
I.T.E.	Class A20
Square D Company	Class 8536
Westinghouse	Type A200 (Size 4 Max.) or Class II-200 (Sizes 5-8)

2.13 INDIVIDUAL COMBINATION MOTOR STARTERS

- A. Combination starter shall incorporate fused disconnect switch and individual magnetic motor starter. Combination starters shall be mounted in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.
- B. Starters shall comply with NEMA standards, size and horsepower ratings as indicated on drawings General Electric, Square D, Westinghouse or I.T.E.
- B. The disconnect handle used on combination starters shall control the disconnect device with the door opened or closed. The disconnect handle shall be clearly marked as to whether the disconnect device is "ON" or "OFF", and shall include a two-color handle grip, the black side visible in the "OFF" position indicating a safe condition, and the red side visible in the "ON" position indicating an unsafe or danger condition.
- C. All starters used in combination starters shall be manufactured in accordance with the latest published NEMA standards, sizes, and horsepower ratings. These starters shall be furnished with three melting alloy type thermal overload relays.
- D. Thermal units shall be of one-piece construction and interchangeable. The starter shall be inoperative if a thermal unit is removed.

2.14 MOTOR CONTROL CENTER, INTERLOCKS AND CONTROL DEVICES

- A. Refer to mechanical and plumbing drawings and specifications and provide all control devices including timeswitches, relays and interconnection of starters as required.

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- B. Mount all relays and timeswitches in a separate compartment in motor control center unless otherwise indicated.
- C. Whether shown on mechanical and plumbing drawings or control center schedules or not, where motors are controlled by external devices (i.e., thermostats, relays, float or pressure switches, etc.) or interlocked with other motors, each motor starter to be equipped with a "Hand-Off-Auto" selector switch in starter cover. Other starters equipped with a "Start' Stop" pushbutton station in starter cover. The Contractor shall be responsible to submit a complete and detailed set of shop drawings, electrical schematic design along with electrical component cut sheets from the MCC panel or the interlock control device manufacturer. RSD Total Control: Allan Pearson 949-380-7878, South Coast Controls: Anthony Ellis 714-998-5656 or approved equal.

2.15 FUSES

- A. Fuses shall be dual element, current limiting type, U.L. Class RK5 unless otherwise indicated on the drawings. Provide one spare set of fuses of each size and type in each motor control center.

2.16 TIME CLOCKS

- A. Time clocks shall be provided for all underwater lighting systems and swimming pool circulation pumps not controlled by filter microprocessors.
- B. Contacts shall have a minimum rating of 40 amperes at 277V.
- C. Timing motor shall be heavy duty synchronous, self-starting, high torque type, and shall be rated at 120, 208, 240, 277 volt 60 Hz.
- D. Motor shall operate normally at temperature range of -60 degrees Fahrenheit to +120 degrees Fahrenheit.
- E. Dial shall be 3" diameter, clearly calibrated with day/night zones and 24 hour rotation, with gear to provide one revolution yearly which automatically varies the on/off settings each day according to seasonal changes. Day and month of the year shall show clearly through calendar window on the dial.
- F. Time clocks shall be equipped with 7-spoke omitting wheel marked with days of the week.
- G. Time clocks shall be housed in a corrosion resistant rated enclosure in accordance with the latest NEC requirements.

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- H. Acceptable manufacturers are Intermatic, Tork, Paragon, or approved equal.

2.17 GROUND FAULT CIRCUIT INTERRUPTERS

- A. Minimum rating shall be 20 amperes, 125V, 5 milliampere trip setting, Class A per UL943.
- B. Manufacturer to be Crouse-Hinds, Leviton, or approved equal.

2.18 BOXES

- A. Boxes shall be of the size required by ordinances or larger, must be corrosion resistant in accordance with the latest NEC requirements where concealed or exposed on ceilings or walls.
- B. Outlets to be surface where wiring is exposed and flush in areas where conduit is concealed.
- B. Provide surface outlets with proper corrosion resistant surface covers. Box and cover shall be deep enough to provide at least 1/4" clearance between back of device and back of box. Where box contains more than one device, use a corrosion resistant rated gang box with proper cover in accordance with the latest NEC requirements. Surface outlet boxes shall be of the threaded hub type wherever below 8'0".
- C. If necessary for cable installation, additional pull boxes or junction boxes may be installed in accessible locations. Exposed pull boxes and junction boxes shall be corrosion resistant rated in accordance with the latest NEC requirements.
- E. Where exposed to weather pull boxes larger than outlet boxes are required, galvanized code gauge sheet steel boxes may be used with covers attached by brass machine screws may be used. Boxes exposed to the weather shall be approved for the purpose, and conduit entrances shall be on the bottom made by means of an interchangeable hub with gasket and adapter nut. Pull boxes not shown on Drawings may be added only after approval of size and location is obtained.
- F. For outlets exposed to weather or where noted, cast outlet boxes shall be Crouse-Hinds, Appleton, or approved equal. Boxes shall have proper number and size hubs. Device plates, covers, adapters and boxes shall be as manufactured by Crouse-Hinds, Appleton, or approved equal.
- G. Exposed junction boxes, outlet boxes and pull boxes for pool chemical rooms shall be non-metallic suitable for a corrosive environment and in accordance with the latest NEC requirements.

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2.19 IDENTIFICATION MARKINGS

- A. Plainly mark all motor and electrical appliance control equipment indicating the equipment controlled with engraved metal tags.
- B. Provide laminated plastic nameplates on panelboards on the outside of the door at the top indicating panel designation and feeder source.
- C. Provide laminated plastic nameplates on distribution switchboards and motor control centers at the top center indicating panel designation and feeder source.
- D. Identify each distribution switchboard and motor control center circuit breaker with a laminated plastic nameplate indicating its' use.
- E. Type panelboard directories on the forms provided with the equipment, indicating the use of each branch circuit breaker.
- F. Fasten all laminated plastic nameplates to surfaces with two (2) or more screws.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify conditions at the Project site before submitting bid. Be responsible for providing all necessary wiring for the new electrical systems. Wherever wiring is being disrupted due to remodeling or changes, reconnect existing and provide new wiring circuits to accomplish a fully operable system at no additional cost to the Owner.

3.02 COORDINATION

- A. The Drawings are essentially diagrammatic and indicate the desired location, size, routes, connection points, etc., and are to be followed as closely as possible. Proper judgment must be exercised in executing the Work so as to provide the best possible installation in the available space and to overcome difficulties, limitations or interference wherever encountered. Be responsible for the correct placement of this Work, the proper location and connection in relation to Work of other trades, for determining the exact location of all conduits, outlets and equipment, and for installing the conduits in such a manner as to conform to the structure, avoid obstruction, preserve headroom and keep openings and passageways clear. Particular attention is directed to the close coordination required on exposed Work. Locations shown on Architectural or Mechanical Drawings if different than those shown on Electrical Drawings should be communicated to the Owner's Representative in writing for clarification.

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3.03 INSTALLATION

- A. Trenching and Backfill: Conform with requirements of Section 13 11 01. Provide minimum cover as required by Code.
- B. Conduit Installation:
 - 1. Conduit and metallic raceway systems shall be mechanically and electrically continuous from sources of current to all outlets in a manner to provide a continuous grounding path. Close ends of conduit during construction to prevent entrance of dirt or moisture.
 - 2. Securely fasten conduit to the building construction within three feet of each outlet and within every ten feet thereafter. Secure it to boxes, cabinets, pull boxes, terminals with two locknuts and ends equipped with bushings or a terminal fitting. Cut square with ends carefully reamed.
 - 3. Make bends or elbows so that the conduit will not be injured or flattened.
 - 4. Use insulated metallic bushings in all places where bushings are required.
 - 5. Run exposed conduits level or plumb and parallel to the construction members of the building. No cutting across or diagonal runs will be permitted. Neatly surmount structural obstructions encountered on conduit runs by the use of fittings or pull boxes.
 - 6. Identify feeder conduits by stamped metal tags secured to exposed section of conduit in main or sub-panels.
 - 7. Make up all threaded conduit joints gas and watertight with conductive sealer except conduit above ground in dry indoor locations.
 - 8. Rigidly support all boxes independently of the conduit system.
- C. Connections to Equipment:
 - 1. Fully connect, in an approved manner, all electrical outlets, apparatus, motors, equipment, fixtures, wiring devices and appliances whether they are installed under the Electrical Contract or not, which require electrical connections, to the corresponding electrical system outlet.
 - 2. Where the Work of this Section requires connections to be made to equipment that is furnished and set-in-place under other Sections, obtain such roughing-in dimensions from the manufacturer or supplier of each item as required and assume full responsibility for the installation of the connections thereto.

3.04 ADJUSTMENT AND CLEAN-UP

- A. Preliminary Operation: Should the Owner's Representative deem it necessary to

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operate the electrical installation or any part thereof prior to Substantial Completion of the Work, consent to such preliminary operation and supervise conduction of same. Subcontractor shall pay all costs occasioned by such operation. Preliminary operation shall not be construed as an acceptance of any Work installed under this Contract.

- B. Clean-up: Upon completion of the Work of this Section, immediately remove all swimming pool electrical materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION