



VOLUME 1
SPECIFICATIONS FOR THE
CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA
BID NO.: DE-26-01-SP

PREPARED FOR

City OF FONTANA
8353 Sierra Avenue
Fontana, California 92335
(909) 350-7610

PREPARED BY

PBK ARCHITECTS
8163 Rochester Avenue, Suite 100
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(909) 987-0909

AUGUST 2025

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CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA
BID NO.: DE-26-01-SP

Prepared Under the Supervision of:

KELLEY NEEDHAM
Licensed Architect No. 19064, Expires March 31, 2027



8/18/2025

DATE:

Approved By:



8/19/25

FOR

Public Works Director/ City Engineer
GIA LAM KIM, P.E.

DATE

**SPECIFICATIONS FOR THE
CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA**

BID NO.: DE-26-01-SP

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|---|------------------------------|
| Owner: | CITY OF FONTANA |
| Project/Construction Manager: | Estephany Monroy |
| Architect: | PBK Architects, Inc. |
| Civil Engineer: | MSL Engineering, Inc. |
| Geotechnical Engineer/Materials Testing: | TBD |

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FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA

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6585 CHERRY AVENUE, FONTANA, CALIFORNIA
BID NO.: DE-26-01-SP

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**NOTICE INVITING SEALED BIDS
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA**

BID NO.: DE-26-01-SP

PUBLIC NOTICE IS HEREBY GIVEN that the **City OF FONTANA**, as **City**, invites sealed bids to be received only by submitting electronically at www.fontanapurchasing.org, for the above stated project and **will receive such bids no later than the hour of 2:00 P.M. on the 18th day of September, 2025**, at which time or thereafter said bids will be **electronically opened and available online**. Bids received after this time will not be able to submit electronically.

A non-mandatory pre-bid conference will be held at the **City of Fontana on September 9, 2025, at 10:00 a.m., in the DSO Conference Room 125**. Bidders are encouraged to attend.

The **City** reserves the right to reject any or all bids, to waive any irregularity, to accept any bid or portion thereof, and to take all bids under advisement for a period of ninety (90) calendar days.

The work of improvement consists of furnishing all materials, equipment, tools, labor, and incidentals as required by the Plans, Specifications and Contract Documents for the above stated project. The general items of work to be done hereunder consist of on-site and off-site improvements required for the construction of the Fire Station 80- Training Center Project, located at 6585 Cherry Avenue; and all project related improvements as indicated in the project plans and specifications.

Bid must be submitted electronically for the exact item(s) requested in the bid specifications. Copies of the plans, specifications, and contract documents are available **for free** from the City's Purchasing website www.fontanapurchasing.org.

Each Bid submitted electronically is required to be accompanied by the Proposal Documents; Proposal, Bidder's Information, Contractor's Licensing Statement, List of Subcontractors (enter online), References, Designator of Sureties, Bid Bond, Non-Collusion affidavit, Certificate of Non-Discrimination by Contractors, Proposal Bid Sheet (enter online), Addendum Acknowledgement, and all additional documentation required by the Instructions to Bidders. Bids must be submitted on the City's bid forms. Any questions pertaining to this project should be directed to **Sid Lambert at phone number (909) 350-7678 or email at slambert@fontana.org**.

Proposals must be accompanied by a proposal guarantee in the form of cash, cashier's check, a certified check or bid bond available to the **City** in the amount of at least ten percent (10%) of the total amount bid. Any proposal not accompanied by such a guarantee will not be considered. A payment bond and a performance bond, each in an

amount equal to 100% of the total contract amount, shall be required concurrently with the execution of the contract and shall be in the form set forth in the contract documents.

Any contract entered into pursuant to this notice will incorporate the provisions of the **State Labor Code. Labor Code Section 1735** requires that no discrimination be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in **Government Code Section 12940**. Compliance with the prevailing rates of wages and apprenticeship employment standards established by the **State Director of Industrial Relations** will be required. Affirmative action to ensure against discrimination in employment practices on the basis of race, color, national origin, ancestry, sex, or religion will also be required.

Pursuant to Section 1773.2 of the Labor Code, the current prevailing rate of per diem wages at the time of the Bid determined by the Director of the Department of Industrial Relations ("DIR") are on file at the office of the City Engineer. This project is subject to compliance monitoring and enforcement by the DIR.

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the DIR. No Bid will be accepted, nor any Contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work.

Qualified To Bid Per Labor Code Section 1771.1. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. An unregistered contractor may only submit a bid if authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work at the time the contract is awarded. No bid will be accepted, nor any contract entered into without proof of the Bidder's and its subcontractors' current registration with the Department of Industrial Relations. If awarded a Contract, the Bidder and its subcontractors of every tier shall maintain active registration with the Department of Industrial Relations for the duration of the Project. It shall be the Bidder's sole responsibility to evaluate and include the cost of complying with all labor compliance requirements. This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

The **City** hereby affirmatively ensures that minority business enterprises will be afforded full opportunity to submit bids in response to this notice and will not be discriminated against on the basis of race, color, national origin, ancestry, sex, or religion in any consideration leading to the award of contract.

The contract documents call for monthly progress payments based upon the engineer's estimate of the percentage of work completed. The **City** will retain 5 percent of each progress payment as security for completion of the balance of the work. At the request and expense of the successful bidder, the **City** will pay the amounts so retained upon

compliance with the requirements of **Public Contract Code Section 22300** and the provisions of the contract documents pertaining to Substitution of Securities.

At the time of submitting a bid, the prime contractor shall possess a Class "A" or "B" contractor's license issued by the State of California and must maintain the license throughout the duration of the contract. Subcontractors can possess a Class "A" or "B" or combinations of Class "C" specialty contractor's license(s) sufficient to perform the work.

BY ORDER OF City OF FONTANA

**City OF FONTANA
8353 Sierra Avenue
Fontana, California 92335
(909) 350-7610**

**INSTRUCTIONS TO BIDDERS
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER 6585
CHERRY AVENUE, FONTANA, CALIFORNIA**

BID NO.: DE-26-01-SP

Public Works Contractor DIR Registration Requirements

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

AVAILABILITY OF CONTRACT DOCUMENTS

Bids shall be submitted to the City on the Bid Forms which are a part of the Bid Package for the Project. Contract Documents may be obtained from the City's Purchasing Department website www.fontanapurchasing.org as indicated in the Notice Inviting Bids.

EXAMINATION OF CONTRACT DOCUMENTS

Bidder shall be solely responsible for examining the Project Site and Contract Documents, including any Addenda issued during the Bidding period, and for informing himself/herself with respect to local labor availability, laws and codes, local permit requirements, availability of required insurance, and other factors that could affect the Work. Bidders are responsible for consulting the standards referenced in the Contract. Failure of Bidder to so examine and inform himself/herself shall be at his/her own risk, and no relief for error or omission will be given except as required under State law.

INSPECTION OF SITE

Each prospective Bidder is responsible for fully acquainting himself/herself with the conditions of the Project Site (which may include more than one site), as well as those relating to the construction and labor of the Project, to fully understand the facilities,

difficulties and restrictions which may impact the cost or effort required to complete the Project.

BID GUARANTEE (BOND)

Each Bid shall be accompanied by a proposal guarantee in the form of: (a) cash; (b) a certified check made payable to the City; (c) a cashier's check made payable to the City; or (d) a Bid bond payable to the City executed by the Bidder as principal and surety as obligor in an amount not less than 10% of the maximum amount of the Bid. Personal sureties and unregistered surety companies are unacceptable. The surety insurer shall be California admitted surety insurer, as defined in Code of Civil Procedure Section 995.120.

The cash, check or Bid Bond shall be given as a guarantee that the Bidder shall execute the Contract if it be awarded to the Bidder, shall provide the payment and performance bonds and insurance certificates and endorsements as required herein within ten (10) calendar days after notification of the award of the Contract to the Bidder. Failure to provide the required documents may result in forfeiture of the Bidder's Bid deposit or bond to the City and the City may award the Contract to the next lowest responsible Bidder, or may call for new Bids.

PERFORMANCE BOND AND PAYMENT (LABOR AND MATERIALS) BOND REQUIREMENTS

Within the time specified in the Contract Documents, the Bidder to whom a Contract is awarded shall deliver to the City three identical counterparts of the Performance Bond and Payment (Labor and Material) Bond, each in an amount equal to one hundred percent (100%) of the Total Bid Amount and in the form supplied by the City and included in the Contract Documents. Failure to do so may, in the sole discretion of the City, result in the forfeiture of the Bid Guarantee. The surety supplying the bond must be an admitted surety insurer, as defined in the Code of Civil Procedure Section 995.120, authorized to do business as such in the State of California and satisfactory to the City.

SIGNING OF BONDS

All Bids submitted shall be executed by the Bidder or its authorized representative. Bidders may be asked to provide evidence in the form of an authenticated resolution of its Board of Directors or Power of Attorney evidencing the capacity of the person signing the Bid to bind the Bidder to each Bid and to any Contract arising therefrom.

If a Bidder is a joint venture or partnership, it may be asked to submit an authenticated Power of Attorney executed by each joint venture or partner appointing and designating one

of the joint venturers or partners as a management sponsor to execute the Bid on behalf of Bidder. Only that joint venturer or partner shall execute the Bid. The Power of Attorney shall also: (1) authorize that particular joint venturer or partner to act for and bind Bidder in all matters relating to the Bid; (2) provide that each venturer or partner shall be jointly and severally liable for any and all of the duties and obligations of Bidder assumed under the Bid and under any Contract arising therefrom. The Bid shall be executed by the designated joint venturer or partner on behalf of the joint venture or partnership in its legal name.

EXECUTION OF CONTRACT

As required herein the Bidder to whom an award is made shall execute the Contract in the amount determined by the Contract Documents. The City may require appropriate evidence that the persons executing the Contract are duly empowered to do so.

NON-COLLUSION DECLARATION

Bidder shall declare that the only persons or parties interested in the proposal as principals are those named therein; that no officer, agent, or employee of the **City** is personally interested, directly or indirectly, in the proposal; that the proposal is made without connection to any other individual, firm, or corporation making a bid for the same work; and that the proposal is in all respects fair and without collusion or fraud. The Non-Collusion Affidavit shall be executed and submitted with the proposal.

NON-DISCRIMINATION AFFIDAVIT

Labor Codes Section 1735 requires that no discrimination be made in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in **Government Code Section 12940**. Bidder shall declare that it does not discriminate in its employment with regard to such factors. The Non-Discrimination Affidavit (on enclosed form) shall be executed and submitted with the proposal.

PROPOSAL BID SHEET

Bidders shall give unit prices for each and all of the items set forth. No aggregate bids will be considered. The bidder shall set forth for each item of work, in clearly legible figures, a unit item price and a total for the item in the respective spaces provided for this purpose. The quantities listed in the Bid sheets are supplied to give an indication of the

general scope of work, but the accuracy of figures is not guaranteed, and the bidder shall make his own estimates from the drawings. In case of a variation between the unit price and the totals shown by the bidder, the unit price will be considered to be the bid.

REJECTION OF BIDS

The **City** reserves the right to reject any or all bids or waive any irregularity in any one or all bids received.

SUBMISSION OF BIDS

Once the Bid and supporting documents have been completed and signed as set forth herein, they shall be submitted electronically.

Only where expressly permitted in the Notice Inviting Bids, may Bidders submit their Bids via electronic transmission pursuant to Public Contract Code Sections 1600 and 1601. The acceptable method(s) of electronic transmission shall be stated in the Notice Inviting Bids.

DELIVERY AND OPENING OF BIDS

Bids are to be submitted electronically. Electronic Bid System will close exactly at the time set forth in the Notice Inviting Bids. All applicable forms required to be completed per the Bid Documents shall be submitted electronically prior to the Bid date and time. Hard copies will not be accepted as a viable bid. It is the Bidder's sole responsibility to ensure that its bid is received as specified. Bids may be submitted earlier than the date(s) and time(s) indicated.

Bids will be available at the date and time stated in the Notice Inviting Bids and the amount of each Bid will be available online and recorded. The City may in its sole discretion, elect to postpone the opening of the submitted Bids. City reserves the right to reject any or all Bids and to waive any informality or irregularity in any Bid.

WITHDRAWAL OF BID

Prior to the Bid submittal deadline, a Bid may be withdrawn by the Bidder only by using the City's electronic bidding system.

IRREGULAR PROPOSALS

Unauthorized conditions, limitations, or provisions attached to a proposal will render it irregular and may cause its rejection. The completed proposal forms shall be without interlineations, alterations, or erasures. Alternative proposals will not be considered unless specifically requested. No oral, telegraphic, or telephonic proposal, modification, or withdrawal will be considered.

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 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.

INTERPRETATION OF PLANS AND DOCUMENTS

If any bidder contemplates submission of a bid for the proposed contract and is in doubt as to the true meaning of any part of the plans, specifications or other proposed contract documents, or finds discrepancies in, or omissions from, the Plans, Specifications or other Contract Documents or questions as to their meaning shall be immediately brought to the attention of the City by submission of a written request for an interpretation or correction to the City. Such submission, if any, must be sent using the "Q&A" tab of the electronic bid system at www.fontanapurchasing.org. **Interpretations or corrections received within 5 days prior to bid opening will not be answered.**

Any interpretation of the Contract Documents will be made only by addendum duly issued electronically to each person registered on the prospective bidder's list. The City will not be responsible for any explanations or interpretations provided in any other manner. No person is authorized to make any oral interpretation of any provision in the Contract Documents to any Bidder, and no Bidder should rely on any such oral interpretation.

Bids shall include complete compensation for all items that are noted in the Contract Documents and are the responsibility of the Contractor.

ADDENDA

The City reserves the right to revise the Contract Drawings prior to the Bid opening date. Revisions, if any, shall be made by written Addenda. All Addenda issued by the City shall be included in the Bid and made part of the Contract Documents. Pursuant to the Public

Contract Code, Section 4104.5, if the City issues an Addendum which includes material changes to the Project less than 72 hours prior to the deadline for submission of Bids, the City will extend the deadline for submission of Bids. The City may determine, in its sole discretion, whether an Addendum warrants postponement of the Bid submission date. Each prospective Bidder shall provide City a name, address, email, and facsimile number to which Addenda may be sent, as well as a telephone number by which the City can contact the Bidder. Copies of Addenda will be made available on the City's Purchasing Department website www.fontanapurchasing.org. Please Note: Bidders are responsible for ensuring that they have received any and all Addenda. To this end, each Bidder should contact the City's Purchasing Department website www.fontanapurchasing.org to verify that he/she has received all Addenda issued, if any, prior to the Bid submittal deadline. Failure to cover in his bid any such addenda issued may render his bid irregular and may result in its rejection by the City.

COMPLETION OF BID FORMS

Bids shall only be prepared using copies of the Bid Forms which are included in the Contract Documents. The use of substitute Bid Forms other than clear and correct photocopies of those provided by the City will not be permitted. Bids shall be executed by an authorized signatory as described in these Instructions to Bidders. In addition, Bidders shall fill in all blank spaces (including inserting "N/A" where applicable) and initial all interlineations, alterations, or erasures to the Bid Forms. Bidders shall neither delete, modify, nor supplement the printed matter on the Bid Forms nor make substitutions thereon. USE OF BLACK OR BLUE INK, INDELIBLE PENCIL, ELECTRONICALLY OR A TYPED IS REQUIRED. Deviations in the Bid Form may result in the Bid being deemed non-responsive.

MODIFICATIONS OF BIDS

Each Bidder shall submit its Bid in strict conformity with the requirements of the Contract Documents. Unauthorized additions, modifications, revisions, conditions, limitations, exclusions or provisions attached to a Bid may render it non-responsive and may cause its rejection. Bidders shall neither delete, modify, nor supplement the printed matter on the Bid Forms, nor make substitutions thereon. Oral, telephonic and electronic modifications will not be considered, unless the Notice Inviting Bids authorizes the submission of electronic Bids and modifications thereto and such modifications are made in accordance with the Notice Inviting Bids.

DESIGNATION OF SUBCONTRACTORS

Pursuant to State law, the Bidders must designate the name and location of each subcontractor who will perform work or render services for the Bidder in an amount that exceeds one half of one percent (1/2%) of the Bidder's Total Bid Amount, as well as the portion of the work each subcontractor will perform by entering the information online. No additional time will be provided to Bidders to submit any of the requested information in the Designation of Subcontractor Form.

Pursuant to the **Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Public Contract Code)**, bidders are required to list in their proposal the name and location of place of business of each subcontractor who will perform work or labor or render services in or about the construction of the work or improvement or a subcontractor who specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the Plans and Specifications in excess of 1/2 of 1% of this prime contractor's total bid. Failure to list a subcontractor for a portion of the work means that the prime contractor will do that portion of the work. It is the **City's** intent for the Subletting and **Subcontracting Fair Practices Act** to apply to all phases of the work. The list of subcontractors (on enclosed form) shall be executed and submitted with the proposal.

LICENSING REQUIREMENTS

Pursuant to Section 7028.15 of the Business and Professions Code and Section 3300 of the Public Contract Code, all Bidders must possess proper licenses for performance of this Contract. Subcontractors must possess the appropriate licenses for each specialty subcontracted. Pursuant to Section 7028.5 of the Business and Professions Code, the City shall consider any Bid submitted by a contractor not currently licensed in accordance with State law and pursuant to the requirements found in the Contract Documents to be non-responsive, and the City shall reject the Bid. The City shall have the right to request, and Bidders shall provide within five (5) calendar days, evidence satisfactory to the City of all valid license(s) currently held by that Bidder and each of that Bidder's sub-contractors, before awarding the Contract. Please also note that, pursuant to Public Contract Code Section 20676, sellers of "mined material" must be on an approved list of sellers published pursuant to Public Resources Code Section 2717(b) in order to supply mined material for this contract.

LEGAL RESPONSIBILITIES

All proposals must be submitted, filed, made, and executed in accordance with State and Federal laws relating to bids for contracts of this nature whether the same are expressly referred to herein or not.

Any Bidder submitting a proposal shall by such action thereby agree to each and all of the terms, conditions, provisions, and requirements set forth, contemplated, and referred to in the Plans, Specifications, and Contract Documents, and to full compliance therewith.

BASIS OF AWARD; BALANCED BIDS

The City shall award the contract to the lowest responsible Bidder submitting a responsive Bid. The City may reject any Bid which in the opinion of City staff when compared to other Bids received or to the City's internal estimates, does not accurately reflect the cost to perform the Work. The City may reject as non-responsive any Bid which unevenly weights or allocates costs, including but not limited to overhead and profit to one or more particular items.

DISQUALIFICATION OF BIDDERS; INTEREST IN MORE THAN ONE BID

No Bidder shall be allowed to make, submit or be interested in more than one Bid. However, a person, firm, corporation or other entity that has submitted a sub-proposal to a Bidder, or that has quoted prices of materials to a Bidder, is not thereby disqualified from submitting a sub-proposal or quoting prices to other Bidders submitting a Bid to the City. No person, firm, corporation, or other entity may submit a sub-proposal to a Bidder, or quote prices of materials to a Bidder, when also submitting a prime Bid on the same Project.

INSURANCE REQUIREMENTS

The successful bidder shall procure the insurance in the form and in the amount specified in the Contract Documents.

AWARD PROCESS

Once all Bids are electronically opened and reviewed to determine the lowest responsible Bidder, the City will award the Contract. The apparent successful Bidder should begin to prepare the following documents: (1) the Payment (Labor and Materials) Bond, and (2) the required insurance certificates and endorsements. Once the City notifies the Bidder of the award, the Bidder will have ten (10) consecutive calendar days from the date of this notification letter to execute the Contract and supply the City with all of the required documents and certifications. With the notification of award, a submittal list may be issued to the Contractor. Submittals related to the controlling operation(s) shall be reviewed and approved prior to the issuance of the Notice to Proceed (NTP).

FILING OF BID PROTESTS

Bidders may file a 'protest' of a Bid with the City's Purchasing Officer. In order for a Bidder's protest to be considered valid, the protest must:

- A. Be filed in writing within five (5) calendar days after the Bid submittal deadline;
- B. Clearly identify the specific irregularity or accusation;
- C. Clearly identify the specific City staff determination or recommendation being protested;
- D. Specify, in detail, the grounds of the protest and the facts supporting the protest; and
- E. Include all relevant, supporting documentation with the protest at time of filing.

If the protest does not comply with each of these requirements, it will be rejected as invalid.

If the protest is valid, the City's Purchasing Officer, or other designated City staff member, shall review the basis of the protest and all relevant information. The Purchasing Officer will provide a written decision to the protester. The protestor may then appeal the decision to the City Manager.

LABOR CODE

In accordance with **Labor Code section 1771.4**, the Contractor and each subcontractor shall furnish certified payroll records directly to the Department of Industrial Relations on a weekly basis and in the format prescribed by the Department of Industrial Relations, which may include electronic submission. Contractor shall comply with all requirements and regulations from the Department of Relations relating to labor compliance monitoring and enforcement.

The Contractor shall have an affirmative obligation to verify that all subcontractors are currently and validly registered with the Department of Industrial Relations and shall not permit a subcontractor of any tier to perform work on the project without first verifying the subcontractor's registration. The Contractor shall maintain active registration with the Department of Industrial Relations for the duration of the Project. **The Contractor shall include the requirements of Labor Code sections 1725.5 and 1771.1 in its contract with subcontractors and ensure that all subcontractors are registered at the time of bid opening and maintain valid registration for the duration of the project.**

Pursuant to the provisions of **Section 1773 of the Labor Code of the State of California**, the **City** has obtained the general provisions rate of per diem wages and the general prevailing rate for holiday and overtime work in this locality for each craft, classification or type of workman needed to execute the contract from the **Director of the Department of Industrial Relations**. These rates are on file at the office of the City Engineer and available online at <http://www.dir.ca.gov/dlsr>. Bidders are advised that a copy of these rates must be posted by the successful Bidder at the job site(s).

The Contractor and all subcontractors shall comply with the provisions of **Section 1774 of the Labor Code** and other statutes relating to prevailing wages, benefits, overtime and so forth. Failure to comply with the subject section will subject the Contractor to penalty and forfeiture provisions of **Section 1775 of the Labor Code**.

Pursuant to the provisions of **Section 1770 of the Labor Code**, the general prevailing rate of wages has been ascertained (which rate includes employer payments for health and welfare, vacation, pension and similar purposes) applicable to the work to be done, for straight time, overtime, Saturday, Sunday and holiday work.

The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of workmen concerned.

The **City** will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid, and will not under any circumstances be considered as the basis of a claim against the **City** on the contract.

The Contractor and subcontractors shall comply with **Section 1777.6** which stipulates that it shall be unlawful to refuse to accept otherwise qualified employees as registered apprentices solely on the grounds of race, religious creed, color, national origin, ancestry, sex, or age (of such employee), except as provided in **Section 3077**.

Pursuant to **Public Contract Code Section 6109**, contractors or subcontractors who are ineligible to perform work on a public works project pursuant to **Section 1777.1 or Section 1777.7 of the California Labor Code** shall not be allowed to perform any portion of the work contemplated herein. Any subcontract between the Contractor and a debarred subcontractor shall be void as a matter of law, and the debarred subcontractor shall not receive any payment for performing such work. Any public money that has been paid to the debarred subcontractor on the project shall be returned to the Owner. 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.

REQUEST FOR SUBSTITUTIONS/ TRADE NAMES

The successful Bidder shall comply with the substitution request provisions set forth in the Special Provisions, including any deadlines for substitution requests which may occur

prior to the Bid submittal deadline, as specified in the Special Provisions. In accordance with Public Contract Code Section 3400, requests for substitution of products and materials are acceptable only when made prior to the Bid submittal deadline. See Project Manual Section 01 25 13 for additional information. Requests must be submitted no later than seven (7) days prior to the close of bidding.

DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

In accordance with the provisions of the 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 project pursuant to Section 1777.1 or Section 1777.7 of the Labor Code and Federal "Excluded Parties List System". 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 for a Project shall be returned to the City. 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.

WORKER'S COMPENSATION CERTIFICATE

Section 3700 of the State Labor Code requires that every employer shall secure the payment compensation by either being insured against liability to pay compensation with one or more insurers or by securing a certificate of consent to self-insure from the **State Director of Industrial Relations**.

In accordance with this section and with **Section 1861 of the State Labor Code**, the Contractor shall sign a Compensation Insurance Certificate which is included with the Contract Agreement, and submit same to **City** along with the other required contract documents, prior to performing any work. Reimbursement for this requirement shall be considered as included in the various items of work.

CLAYTON ACT AND CARTWRIGHT ACT

Section 7103 of the Public Contract Code specifies that in executing a public works contract with the **City** to supply goods, services or materials, the Contractor or Subcontractor offers and agrees to assign to the **City** all rights, title and interest in and to all causes of action it may have under **Section 4 of the Clayton Act (15 U.S.C. Sec. 15)** or under the **Cartwright Act (Chapter 2 commencing with Sec. 16700) of Part 2 of Division 7 of the Business and Professions Code**, arising from purchase of goods,

services or materials pursuant to the contract or subcontract. This assignment shall become effective when the **City** tenders final payment to the Contractor without further acknowledgment by the parties.

SUBSTITUTION OF SECURITIES

In conformance with the **State of California Public Contract Code, Section 22300**, the Contractor may substitute securities for any monies withheld by the **City** to ensure performance under the contract.

At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the **City** or with a State or Federally chartered bank as the escrow agent who shall pay such monies to the Contractor upon notification by **City** of Contractor's satisfactory completion of the contract.

The type of securities deposited, and the method of release shall be approved by the **City's Attorney**.

NOTICE TO CONTRACTOR:

Pursuant to **Public Contract Code Section 3400(b)**, the **City of Fontana** may make a finding that designates certain materials, products, things, or services by specific brand or trade name for statutorily enumerated purposes. As required by **Section 3400(b)**, the **City of Fontana** has made such findings as further described in the **Project Special Provisions**. **These findings, as well the materials, products, things, or services and their specific brand or trade names that must be used for the Project are found in the Special Provisions and Drawings.**

The Contractor's attention is directed to Section 7-2 of the Special Provisions:

Prior to submittal of the first request for progress payment, the Contractor shall submit a detailed Schedule of Values to be used as a basis for determining progress payments. The Schedule of Values shall be equal to the lump sum bid amount 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.

The Contractor's attention is directed to Section 402-6 of the Special Provisions:

Temporary Water Bypass – Upon award of contract, the Contractor shall coordinate with Fontana Water Company to provide temporary water bypass (“highline”) to provide water to the site prior to installation of new services installed that will be installed by Fontana Water Company. The temporary highline shall deliver 1500 gpm at 20 psi in accordance with Fire Department requirements.

The Contractor shall coordinate with the utility companies and service providers to facilitate the required utility connections (water, gas, electric, cable/internet, etc.) for the services indicated in the project plans and specifications. The Contractor shall be

responsible for applications for service, installation agreements, permits, fees and any other requirements of the utility providers; including, but not limited to, the following:

Electrical Service – Upon award of contract, the Contractor shall contact the Southern California Edison (SCE) service planner and obtain approved drawings prior to installation of the service conduit, ducts, pad mount, risers, pull boxes, protective coverings, etc. shown in the plans. All work indicated in the SCE drawings, whether shown in the project plans or not, including trenching, shall be provided and installed by the Contractor in compliance with SCE, City of Fontana, and California Building Code requirements. The SCE engineering and permit fees associated with providing electrical service shall be paid by the Contractor and reimbursed by the owner. The Contractor shall notify the owner of any discrepancies between the SCE drawings and the project plans prior to proceeding with the work.

Telephone Service – Prior to submitting a bid, the Contractor shall contact the telephone service provider to receive complete information of the requirements and include all service costs associated with providing telephone service and include this within the amount bid. The act of submitting the bid shall constitute the full responsibility of the Contractor to install the telephone service in compliance with the serving utility and to pay all charges levies by the serving utility. All telephone work, including trenching, shall be provided by the Contractor in compliance with the project plans and the requirements of the serving utility.

Cable TV Service - Upon award of contract, the Contractor shall contact the Spectrum service planner and obtain approved drawings prior to installation of the service conduit, ducts, pad mount, risers, pull boxes, protective coverings, etc. shown in the plans. All work indicated in the Spectrum drawings, whether shown in the project plans or not, including trenching, shall be provided and installed by the Contractor in compliance with Spectrum, City of Fontana, and California Building Code requirements. The Spectrum engineering and permit fees associated with providing cable television service shall be paid by the Contractor and reimbursed by the owner. The Contractor shall notify the owner of any discrepancies between the Spectrum drawings and the project plans prior to proceeding with the work.

Fiber Optic Service - Upon award of contract, the Contractor shall contact the city's fiber service planner and obtain approved drawings prior to installation of the service conduit, ducts, pad mount, risers, pull boxes, protective coverings, etc. shown in the plans. All work indicated in the fiber drawings, whether shown in the project plans or not, including trenching, shall be provided and installed by the Contractor in compliance with City of Fontana and California Building Code requirements. The fiber engineering and permit fees associated with providing fiber service shall be paid by the Contractor and reimbursed by the owner. The Contractor shall notify the owner of any discrepancies between the fiber drawings and the project plans prior to proceeding with the work.

Natural Gas Service - Upon award of contract, the Contractor shall contact the Gas Company and obtain approved drawings prior to installation of the service line and meter shown in the plans. All work indicated in the Gas Company drawings, whether shown in the project plans or not, including trenching, shall be provided and installed by the Contractor in compliance with City of Fontana, Gas Company, and California Building Code requirements. Any fees associated with establishing gas service shall be paid by the Contractor and reimbursed by the Agency. The Contractor shall notify the Agency of any discrepancies between the Gas Company drawings and the project plans prior to proceeding with the work.

Temporary Water Bypass – Upon award of contract, the Contractor shall coordinate with Fontana Water Company to provide temporary water bypass (“highline”) to provide water to the site prior to installation of new services that will be installed by Fontana Water Company. The temporary highline shall continuously deliver 1500 gpm at 20 psi in accordance with Fire Department requirements (see Section 402.6) for 120 calendar days.

The Contractor’s attention is directed to the following provisions within the Architectural Specifications (Volume 2 Project Manual).

The Contractor shall coordinate with the manufacturers and suppliers as necessary to complete installation of the Fire Training Tower in accordance with Section 13 14 40 – Fire Fighting Simulator.

The Contractor’s attention is directed to APPENDIX IV regarding environmental mitigation requirements associated with the project.

The Contractor shall notify the Agency and provide a Project Schedule for all ground disturbing activities for the required monitoring in accordance with the Agency’s Mitigation Monitoring and Reporting Plan for the project (Appendix IV) which relates to the following contract provisions:

1. Prior to any construction activities beginning during the nesting bird season (February 1 to August 31), the Contractor shall notify the Agency at least 10-days prior to the start of construction activities so that the Agency can make arrangements for a pre-construction nesting bird survey to be conducted 3 days prior to ground-disturbing activities. If nests are found during surveys, they shall be flagged and a 250-foot buffer to a 500-foot buffer (for raptors) shall be fenced around the nests. The buffer area shall be kept in place until the young have fledged and leave the nest. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased, the buffer may be removed (Refer to Appendix IV- MM BIO-1).

2. The Agency will retain the services of a Qualified Archaeologist, and all initial ground-disturbing work shall be monitored by the Qualified Archaeologist (and/or monitor proficient in artifact and feature identification in monitoring contexts). The Contractor shall provide a master project schedule that identifies the timing of ground disturbing activities (Refer to Appendix IV- MM CUL-1).
3. Prior to commencing any ground disturbance in the Proposed Project site, the Contractor shall participate in initial Worker Environmental Awareness Program (WEAP) training for all construction personnel, including supervisors, presented at the start of construction, for which the Contractor and all subcontractors shall make their personnel available. The WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to archaeological resources and maintain environmental compliance. This WEAP training will also educate the monitor(s) of construction procedures to avoid construction-related injury or harm. This training may be performed periodically, such as for new personnel coming on to the Project as may be needed (Refer to Appendix IV- MM CUL-2).
4. Prior to starting work, the Contractor shall provide the Agency with a schedule of initial ground-disturbing activities for the project. Notice shall be provided to the Agency at least 48 hours in advance of starting any ground disturbing activities so that the Agency can arrange for the required monitoring. The Contractor shall maintain a line of communication with the Agency and the Agency's monitor regarding the project schedule and advance notice of ground disturbing activities (Refer to Appendix IV- MM CUL-3).
5. In the event of the discovery of previously unidentified archaeological materials, the Contractor shall immediately cease all work activities within an area of no less than 60 feet (approximately 18 meters) of the discovery. After cessation of excavation, the Contractor shall immediately contact the Agency (Refer to Appendix IV- MM CUL-4).
6. In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the discovery (within a 60-foot buffer) shall cease and the Agency's Qualified Archaeologist shall assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period (Refer to Appendix IV- MM CUL-5).
7. In the unlikely event that human remains or other buried materials including funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a

100-foot buffer of the find) and the Proposed Project will be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98. As required by state law, the County Coroner shall be notified immediately should human remains be encountered.

PRE-BID CONFERENCE:

A non-mandatory pre-bid conference will be held at the **City of Fontana on September 9, 2025, at 10:00 a.m., in the DSO Conference Room 125**. Bidders are encouraged to attend.

BUILDER'S RISK ["ALL RISK"] INSURANCE:

In addition to the insurance requirements specified in Section 7 of the Special Provisions, it is the Contractor's responsibility to maintain or cause to be maintained Builder's Risk ["All Risk"] extended coverage insurance on all work, material, equipment, appliances, tools, and structures which are part of the Contract and subject to loss or damage by fire, and vandalism and malicious mischief, in an amount to cover 100% of the replacement cost. The City accepts no responsibility until the Contract is formally accepted by the governing body of the work. The Contractor is required to file with the City a certificate evidencing fire insurance coverage.

Provide insurance coverage on completed value form, all-risk or special causes of loss coverage.

- A. Insurance policies shall be so conditioned as to cover the performance of any extra work performed under Contract.
 - B. Coverage shall include all materials stored on site and in transit.
 - C. Coverage shall include Contractor's tools and equipment.
 - D. Insurance shall include boiler, machinery and material hoist coverage.
- Such Insurance shall comply with the provisions of the Contract Documents.

BIDDER'S NAME _____

**PROPOSAL (SUBMIT ONLINE)
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA**

BID NO.: DE-26-01-SP

TO City OF FONTANA, as City:

In accordance with the City's "**Notice Inviting Sealed Bids**", the undersigned BIDDER hereby proposes to furnish all materials, equipment, tools, labor, and incidentals required for the above stated project as set forth in the Plans, Specifications, and Contract Documents therefore, and to perform all work in the manner and time prescribed therein.

BIDDER declares that this proposal is based upon careful examination of the work site, Plans, Specifications, Instructions to Bidders, and Contract Documents. If this proposal is accepted for award, BIDDER agrees to enter into a contract with **City** at the unit and/or lump sum prices set forth in the following Proposal Bid Sheet. BIDDER understands that failure to enter into a contract in the manner and time prescribed will result in forfeiture to **City** of the Bid Bond accompanying this proposal.

BIDDER understands that a bid is required for the entire work that the estimated quantities set forth in the Proposal Bid Sheet are solely for the purpose of comparing bids, and that final compensation under the contract will be based upon the actual quantities of work satisfactorily completed. It is agreed that the unit and/or lump sum prices bid include all appurtenant expenses, taxes, royalties, and fees. In the case of discrepancies in the amounts bid, unit prices shall govern over extended amounts.

BIDDER certifies that it has visited the construction site and familiarized itself with local conditions under which the work is to be performed. Furthermore, BIDDER certifies that it will be responsible for incorporating into its bid whatever contingencies which are discernible by a reasonable investigation.

BIDDER agrees and acknowledges that it is aware of the provisions of **Section 3700 of the Labor Code** which requires every employer to be insured against liability for workman's compensation or to undertake self-insurance in accordance with the provisions of that code, and that the BIDDER will comply with such provisions of that code before commencing the performance of this Contract if awarded to it.

BIDDER certifies that in all previous contracts or subcontracts, all reports which may have been due under the requirements of any Agency, State, or Federal equal employment opportunity orders have been satisfactorily filed, and that no such reports are currently outstanding.

BIDDER declares that the only persons or parties interested in this proposal as principals are those named herein; that no officer, agent, or employee of the **City** is personally interested, directly or indirectly, in this proposal; that this proposal is made without connection to any other individual, firm, or corporation making a bid for the same work; and that this proposal is in all respects fair and without collusion or fraud.

BIDDER certifies that affirmative action has been taken to seek out and consider disadvantaged business enterprises for those portions of the work to be subcontracted, and that such affirmative actions have been carefully documented, that said documentation is open to inspection, and that said affirmative action will remain in effect for the life of any contract awarded hereunder.

Furthermore, BIDDER certifies that affirmative action will be taken to meet all equal employment opportunity requirements of the contract documents.

BIDDER certifies that at the time of submitting a bid, the prime contractor and subcontractor shall possess a Class "B" contractor's license issued by the State of California, and must maintain the license throughout the duration of the contract. In addition, the prime contractor or subcontractors doing work in the public right of way shall possess a Class "A" contractor's license or a combination of Class "C" specialty contractor's license(s) sufficient to perform the work.

BIDDER declares that the contractor's license number is _____ and that the license expiration date is _____.

DATED: _____, 20__

BIDDER: _____

BIDDER'S ADDRESS: _____ BY: _____

_____ TITLE: _____

PHONE: _____ FAX NO: _____

E-MAIL: _____

BIDDER'S INFORMATION (SUBMIT ONLINE)

BIDDER certifies that the following information is true and correct:

Bidder's Name: _____

Business Address: _____

Telephone: _____ Fax: _____

E-Mail: _____

State Contractor's License No. and Class: _____

Original Date Issued: _____ Expiration Date: _____

The following are the names, titles, addresses, and phone numbers of all individuals, firm members, partners, joint ventures, and/or corporate officers having a principal interest in this proposal:

The dates of any voluntary or involuntary bankruptcy judgments against any principal having an interest in this proposal are as follows:

All current and prior DBA'S, alias, and/or fictitious business names for any principal having an interest in this proposal are as follows:

CONTRACTOR'S LICENSING STATEMENT (SUBMIT ONLINE)

The undersigned certifies that bidder is licensed in accordance with the laws of the State of California providing for the registration of Contractors.

Contractor's License Number: _____

License Classification: _____ Expiration Date: _____

Name of Individual Contractor (Print or type):

Signature of Owner: _____

Business Address: _____

or

Name of Firm: _____

Business Address: _____

Name: _____ Title: _____

Address: _____

Name _____ Title: _____

Address: _____

or

Name of Corporation: _____

Business Address: _____

Corporation organized under the laws of the State of California

Signature of President of Corp.

Signature of Secretary of Corp.

Date

LIST OF SUBCONTRACTORS (ENTER ONLINE)

BIDDER proposes to subcontract certain portions of the work as follows:

| Name Under Which Subcontractor Is licensed | State License No. | Address of office, mill or shop | Percent total Contract | Specific description of work | DBE Yes / No |
|---|-------------------------|---------------------------------------|------------------------------|------------------------------------|-----------------|
|---|-------------------------|---------------------------------------|------------------------------|------------------------------------|-----------------|

LISTING OF SUBCONTRACTORS WILL BE ENTERED ONLINE WHEN SUBMITTING YOUR PROPOSAL

ALL ITEMS OF INFORMATION REQUESTED ON THIS PAGE ARE REQUIRED. BIDDERS SHALL SPECIFY EACH SUBCONTRACTOR WHO WILL PERFORM WORK OR LABOR OR RENDER SERVICE TO THE PRIME CONTRACTOR IN AN AMOUNT IN EXCESS OF ONE HALF OF ONE PERCENT (0.5%) OF THE PRIME CONTRACTOR'S TOTAL BID. FAILURE TO LIST ALL INFORMATION AS REQUESTED ABOVE MAY RESULT IN DISQUALIFICATION OF THE BID.

REFERENCES (SUBMIT ONLINE)

The bidder must demonstrate knowledge of public construction techniques and must possess a working ability to perform similarly sized construction work for a public agency. The City expressly reserves the right to reject the bid of any bidder who has failed to complete three (3) **similar projects of substantially the same type** in a timely fashion or in a satisfactory manner. The following are the names, addresses, phone numbers and contact person for three public agencies for which BIDDER has performed similar work within the past three (3) years: **FAILURE TO FURNISH SUCH INFORMATION (IN THE COMPLETE FORMAT REQUIRED) MAY CAUSE YOUR BID TO BE REJECTED AS NON-RESPONSIVE.**

AGENCY: _____

ADDRESS: _____

CONTACT PERSON: _____

PHONE: _____ EMAIL: _____

SCOPE OF WORK AND DOLLAR AMOUNT: _____

AGENCY: _____

ADDRESS: _____

CONTACT PERSON: _____

PHONE: _____ EMAIL: _____

SCOPE OF WORK AND DOLLAR AMOUNT: _____

AGENCY: _____

ADDRESS: _____

CONTACT PERSON: _____

PHONE: _____ EMAIL: _____

SCOPE OF WORK AND DOLLAR AMOUNT: _____

DESIGNATOR OF SURETIES (SUBMIT ONLINE)

The following are the names, addresses, and phone numbers for all brokers and sureties from whom BIDDER intends to procure insurance and bonds:

NAME/TITLE: _____

ADDRESS: _____

PHONE: _____ FAX: _____

E-MAIL: _____

NAME/TITLE: _____

ADDRESS: _____

PHONE: _____ FAX: _____

E-MAIL: _____

NAME/TITLE: _____

ADDRESS: _____

PHONE: _____ FAX: _____

E-MAIL: _____

BID BOND (SUBMIT ONLINE)
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA
BID NO.: DE-26-01-SP

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned, _____
_____, (hereafter called "Principal"),
and _____, (hereafter called "Surety"), are held and firmly
bound unto the **City of Fontana** (hereafter called "**OWNER**"), in the sum of
_____ dollars (\$_____), for the payment of
which, well and truly to be made, we hereby jointly and severally bind ourselves and our
successors and assigns.

SIGNED this _____ day of _____, 20__.

The condition of the above obligation is such that whereas the Principal has
submitted to the **OWNER** a certain Bid, attached hereto and hereby made a part hereof, to
enter into a contract in writing for the construction of the **City of Fontana Fire Station 80 –
Training Center**.

NOW THEREFORE,

- a. If said Bid is rejected, or
- b. If said Bid is accepted and Principal executes and delivers a contract in the
attached Agreement form within then (10) days after acceptance (properly
completed in accordance with said Bid), and furnishes insurance certificates
and endorsements, bonds for faithful performance of said Contract and for the
payment of all persons performing labor or furnishing materials in connection
therewith, and all other required documents, then this obligation shall be void;
otherwise, the same shall remain in force and effect, it being expressly
understood and agreed that the liability of Surety for any and all claims
hereunder shall, in no event, exceed the amount of this obligation as herein
stated.

For value received, Surety hereby stipulates and agrees that the obligation of said
Surety and its bond shall be in no way impaired or affected by any bidding errors or extension
of the time within which the **OWNER** may accept such Bid, and said Surety hereby waives
notice of any such extension.

(Page 1 of 3)

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year first set forth above.

PRINCIPAL: _____

ATTEST: (if corporation)

By: _____ By: _____

Title: _____ Title: _____

Corporate Seal)

SURETY: _____

ATTEST:

By: _____ By: _____

Title: _____ Title: _____

(Corporate Seal)

IMPORTANT: Surety companies executing Bonds must possess a certificate of authority from the **California Insurance Commissioner** authorizing them to write surety insurance defined in **Section 105 of the California Insurance Code**, and if the work or project is financed, in whole or in part, with federal grant or loan funds, must also appear on the **Treasury Department's most current list (Circular 570 as amended)**. **THIS IS A REQUIRED FORM.**

Any claims under this bond may be addressed to:

(Name and address of Surety) _____

(Name and address of agent or
Representative for service of
Process in California, if
Different from above)

(Telephone number and FAX
Number of Surety and agent
Or representative for
Service of process in
California)

_____ / _____

E-MAIL: _____

(Page 2 of 3)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California }

} ss.

County of _____ }

On _____ before me,

Here Insert Name and Title of the Officer

personally appeared _____

Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature:

Place Notary Seal Above

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title of Type of Document: _____

Document Date: _____

Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

☐ Individual

☐ Corporate Officer

Title(s): _____

☐ Partner - ☐ Limited ☐ General

☐ Attorney in Fact

☐ Trustee

☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

| |
|--|
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| |
| |

Right Thumbprint of Signer
Top of thumb here

Signer's Name: _____

☐ Individual

☐ Corporate Officer

Title(s): _____

☐ Partner - ☐ Limited ☐ General

☐ Attorney in Fact

☐ Trustee

☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

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NON-COLLUSION DECLARATION (SUBMIT ONLINE)

The undersigned declares:

I am the _____ of _____,
_____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____[date], at _____[City], _____[state].

(Signature)

(Print Name)

(Title)

**CERTIFICATION OF NON-DISCRIMINATION BY CONTRACTORS (SUBMIT
ONLINE)**

Labor Code Section 1735 requires that no discrimination be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status or sex of such persons, except as provided in **Government Code Section 12940**.

The firm listed below certifies that it does not discriminate in its employment with regard to the factors set forth in **Labor Code Section 1735**; that it is in compliance with all federal, state and local directives and executive orders regarding non-discrimination in employment; and that it agrees to demonstrate positively and aggressively the principle of equal employment opportunity in employment.

We agree specifically:

1. To establish or observe employment policies which affirmatively promote opportunities for minority persons at all job levels.
2. To communicate this policy to all persons concerned, including all company employees, outside recruiting services, especially those serving minority communities, and to the minority communities at large.
3. To take affirmative steps to hire minority employees within the company.

FIRM: _____

TITLE OF PERSON SIGNING: _____

SIGNATURE: _____

DATE: _____

Please include any additional information available regarding equal opportunity employment programs now in effect within your company.

PROPOSAL BID SHEET (SUBMIT ONLINE)
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA

BID NO.: DE-26-01-SP

| ITEM NO. | Description General | ESTIMATED QUANTITY | UNIT |
|-----------------|--|-------------------------------|-------------|
| 1 | Construction of Fire Station No. 80 Training Center and all related on-site and off-site improvements. | 1 | LS |
| 2 | Install, maintain, and remove temporary water facilities (highline) from San Sevaine Rd to the project site (120 Calendar Days). | 1 | LS |

**PROPOSAL BID SHEET
FOR CONSTRUCTION OF**

FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA

BID NO.: DE-26-01-SP

(CONTRACT AWARD WILL BE BASED ON THE BID SCHEDULE TOTAL)

NOTE: The estimated quantities listed in the **Proposal Bid Sheet(s)** are supplied to give an indication of the general scope of the work, but the accuracy of these figures is not guaranteed and the bidder shall make his own estimates from the drawings. In case of a variation between the unit price and the totals shown by the bidder, the unit price will be considered to be the bid.

**PROPOSAL BID SHEET
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA**

BID NO.: DE-26-01-SP

ADDENDUM ACKNOWLEDGMENT

ADDENDUM(S) TO BE ACKNOWLEDGED ONLINE WHEN YOU ARE SUBMITTING YOUR BID.

**CONTRACT AGREEMENT
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA
BID NO.: DE-26-01-SP**

THIS CONTRACT AGREEMENT is made and entered into for the
Above stated project this _____ day of _____, 20____,
BY AND BETWEEN **City of Fontana**, as **City**, and _____
_____, As Contractor.

WITNESSETH that **City** and Contractor have mutually agreed as follows:

ARTICLE I

The **CONTRACT DOCUMENTS** for the aforesaid project shall consist of the Notice Inviting Sealed Bids, Instructions to Bidders, Proposal Documents, General Conditions, Standard Specifications, Special Provisions, Plans (**Drawings T1 through T6, C1 through C11, A1.1 through A8.7, S0.1 through S4.4, M0.1 through M3.2, P0.1 through P5.1, E0.1 through E4.3, L1.1 through L2.2, and Reference Tower Plan 0 through 7**), and all referenced specifications, details, standard drawings, and appendices; together with this Contract Agreement and all required bonds, insurance certificates, permits, notices, and affidavits; and also including any and all addenda or supplemental agreements clarifying, amending, or extending the work contemplated as may be required to insure its completion in an acceptable manner. All of the provisions of said **CONTRACT DOCUMENTS** are made a part hereof as though fully set forth herein.

ARTICLE II

For and in consideration of the payments and agreements to be made and performed by **City**, Contractor agrees to furnish all materials and perform all work required for the above stated project, and to fulfill all other obligations as set forth in the aforesaid **CONTRACT DOCUMENTS**.

ARTICLE III

Contractor agrees to receive and accept the prices set forth in the **PROPOSAL BID SHEET(S)** as full compensation for furnishing all materials, performing all work, and fulfilling all obligations hereunder. Said compensation shall cover all expenses, losses, damages, and consequences arising out of the nature of work during

its progress or prior to its acceptance including those for well and faithfully completing the work and the whole thereof in the manner and time specified in the aforesaid contract documents; and also including those arising from actions of the elements, unforeseen difficulties or obstructions encountered in the prosecution of the work, suspension or discontinuance of the work, and all other unknowns or risks of any description connected with the work.

ARTICLE IV

City hereby promises and agrees to employ, and does hereby employ, Contractor to provide the materials, do the work, and fulfill the obligations according to the terms and conditions herein contained and referred to, for the prices aforesaid, and hereby contracts to pay the same at the time, in the manner, and upon the conditions set forth in the contract documents.

ARTICLE V

Contractor acknowledges the provisions of the **State Labor Code** requiring every employer to be insured against liability for worker's compensation, or to undertake self-insurance in accordance with the provisions of that code, and certifies compliance with such provisions.

ARTICLE VI

Contractor shall defend, indemnify and hold harmless **City**, its officers, officials, agents, employees and contractors from and against all claims, damages, losses and expenses, including attorney's fees, arising out of or resulting from performance of work under this Contract and which are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of property, including the loss of use resulting therefrom, caused in whole or in part by any act or omission of the Contractor or anyone directly or indirectly employed or engaged by it or for whose acts it may be liable.

Without limiting the generality of the foregoing paragraph, Contractor specifically agrees to indemnify and hold harmless **City**, its officers, officials, agents, employees, and contractors from and against all claims, damages, losses, penalties, fines and expenses

(including attorney's fees and litigation costs) arising out of or in any way resulting from Contractor's failure to perform the work required of it under this Contract in the manner required by this Contract and applicable provisions of federal and state law.

ARTICLE VII

Contractor affirms that the signatures, titles, and seals set forth hereinafter in execution of this Contract Agreement represent all individuals, firm members, partners, joint ventures, and/or corporate officers having a principal interest herein.

ARTICLE VIII

If any legal action is required to enforce or interpret the Contract Documents, then the prevailing party shall have the right to recover from the losing party all costs of such action including attorney fees.

ARTICLE IX

PAYMENTS WITHHELD AND BACKCHARGES In addition to amounts which the City may retain under other provisions of the Contract Documents the City may withhold payments due to Contractor as may be necessary to cover:

- a. Stop Notice Claims.
- b. Defective work not remedied.
- c. Failure of Contractor to make proper payments to its subcontractors or suppliers.
- d. Completion of the Contract if there exists a reasonable doubt that the work can be completed for balance then unpaid.
- e. Damage to another contractor or third party.
- f. Amounts which may be due the City for claims against Contractor.
- g. Failure of Contractor to keep the record ("as-built") drawings up to date.
- h. Failure to provide updates on the construction schedule.
- i. Site clean up.
- j. Failure of the Contractor to comply with requirements of the Contract Documents.
- k. Liquidated damages.
- l. Legally permitted penalties.

Upon completion of the Contract, the City will reduce the final Contract amount to reflect costs charged to the Contractor, back charges or payments withheld pursuant to the Contract Documents.

**SIGNATURE PAGE
CITY OF FONTANA
FIRE STATION NO. 80 - TRAINING CENTER 6585 CHERRY AVENUE, FONTANA,
CALIFORNIA AGREEMENT**

CITY OF FONTANA

**CONTRACTOR NAME [WILL BE INSERTED AFTER
CONTRACT AWARD]**

By: _____
Matthew C. Ballantyne
City Manager

By: _____
INSERT NAME
INSERT TITLE

Attest:

Attest: ¹

By: _____
Germaine McClellan Key
City Clerk

By: _____
INSERT NAME
INSERT TITLE

Approved as to form:

Best Best & Krieger LLP
City Attorney

By: _____
Phillip Burum, Deputy City Manager
Development Services Organization

By: _____
Gia Lam Kim
Public Works Director/ City Engineer

IN COMPLIANCE WITH INSURANCE ADMINISTRATION POLICIES/PROCEDURES

By: _____
Rakesha Voss, Director of
Human Resources and Risk Management

IN COMPLIANCE WITH PURCHASING AND CONTRACT ADMINISTRATION POLICIES/PROCEDURES

Jessica Brown
Chief Financial Officer

Purchasing

¹ Attestation of Consultant's signature must be obtained when required by the by-laws, articles of incorporation or other laws, rules or regulations applicable to Consultant's business entity.

CONTRACT PERFORMANCE BOND
(CALIFORNIA PUBLIC WORK)
FOR CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA

BID NO.: DE-26-01-SP

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the City of Fontana (hereinafter referred to as "City") has awarded to _____, (hereinafter referred to as the "Contractor") _____ an agreement for construction of Fire Station No. 80 – Training Center (hereinafter referred to as the "Project");

WHEREAS, the work to be performed by the Contractor is more particularly set forth in the Contract Documents for the Project dated _____, (hereinafter referred to as "Contract Documents"), the terms and conditions of which are expressly incorporated herein by reference; and

WHEREAS, the Contractor is required by the Contract Documents to perform the terms thereof and to furnish a bond for the faithful performance of the Contract Documents.

NOW, THEREFORE, we, _____, the undersigned Contractor and _____ as Surety, a corporation organized and duly authorized to transact business under the laws of the State of California, are held and firmly bound unto City in the sum of _____ DOLLARS, (\$_____), the sum being not less than one hundred percent (100%) of the total amount of the Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the Contract Documents and any alteration thereof made as therein provided, on its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill all obligations including the one-year guarantee of all materials and workmanship; and shall indemnify and save harmless City, its officers and agents, as stipulated in the Contract Documents, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a condition precedent to the satisfactory completion of the Contract Documents, unless otherwise provided for in the Contract Documents, the guarantee obligation shall hold good for a period of one (1) year after the acceptance of the work by City, during which time if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect City from loss or damage resulting from or caused by defective materials or faulty workmanship the above obligation in penal sum thereof shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit City's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

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

Whenever Contractor shall be, and is declared by City to be, in default under the Contract Documents, the Surety shall remedy the default pursuant to the Contract Documents, or shall promptly, at City's option:

1. Take over and complete the Project in accordance with all terms and conditions in the Contract Documents; or
2. Obtain a bid or bids for completing the Project in accordance with all terms and conditions in the Contract Documents and upon determination by Surety of the lowest responsive and responsible bidder, arrange for a Contract between such bidder, the Surety and City, and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by City under the Contract and any modification thereto, less any amount previously paid by City to the Contractor and any other set offs pursuant to the Contract Documents.
3. Permit City to complete the Project in any manner consistent with California law and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by City under the Contract and any modification thereto, less any amount previously paid by City to the Contractor and any other set offs pursuant to the Contract Documents.

Surety expressly agrees that City may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Contractor.

Surety shall not utilize Contractor in completing the Project nor shall Surety accept a bid from Contractor for completion of the Project if City, when declaring the Contractor in default, notifies Surety of City's objection to Contractor's further participation in the completion of the Project.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Documents or to the Project to be performed thereunder shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract Documents or to the Project, including but not limited to the provisions of sections 2819 and 2845 of the California Civil Code.

[Remainder of Page Left Intentionally Blank.]

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

CONTRACTOR/PRINCIPAL

Name

By _____

SURETY:

By: _____
Attorney-In-Fact

Signatures of those signing for the Contractor and Surety must be notarized and evidence of corporate authority attached.

The rate of premium on this bond is _____ per thousand. The total amount of premium charges, \$ _____.

(The above must be filled in by corporate attorney.)

THIS IS A REQUIRED FORM

Any claims under this bond may be addressed to:

Name and Address of Surety

Name and Address of Agent or
Representative for service of process
in California, if different from above

Telephone number of Surety and
Agent or Representative for service of
process in California

NOTE: A copy of the Power-of-Attorney authorizing the person signing on behalf of the Surety to do so must be attached hereto.

[INSERT NOTARY ACKNOWLEDGEMENT]

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS That

WHEREAS, the City of Fontana (hereinafter designated as "City"), by action taken or a resolution passed _____, 20____ has awarded to _____ hereinafter designated as the "Principal," a contract for the work described as follows: _____ (the "Work"); and

WHEREAS, the work to be performed by the Contractor is more particularly set forth in the Contract Documents for the Project dated _____, (hereinafter referred to as "Contract Documents"), the terms and conditions of which are expressly incorporated herein by reference; and

WHEREAS, Principal is required to furnish a bond in connection with the contract described above; providing that if Principal or any of its Subcontractors shall fail to pay for any materials, provisions, provender, equipment, or other supplies used in, upon, for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Code or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of Principal and its Subcontractors with respect to such work or labor the Surety on this bond will pay for the same to the extent hereinafter set forth.

NOW THEREFORE, we, the Principal and _____ as Surety, are held and firmly bound unto City in the penal sum of _____ Dollars (\$_____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if Principal, his or its subcontractors, heirs, executors, administrators, successors or assigns, shall fail to pay any of the persons named in section 9100 of the Civil Code, fail to pay for any materials, provisions or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department or Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to section 18663 of the Revenue and Taxation Code, with respect to such work and labor the Surety or Sureties will pay for the same, in an amount not exceeding the sum herein above specified, and also, in case suit is brought upon this bond, all litigation expenses incurred by City in such suit, including reasonable attorneys' fees, court costs, expert witness fees and investigation expenses.

This bond shall inure to the benefit of any of the persons named in section 9100 of the Civil Code so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the Surety on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition,

alteration or modification in, to, or of any contract, plans, specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described, or pertaining or relating to the furnishing of labor, materials, or equipment therefore, nor by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to any scheme or work of improvement herein above described, nor by any rescission or attempted rescission or attempted rescission of the contract, agreement or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given, and under no circumstances shall Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the owner or City and original contractor or on the part of any obligee named in such bond, but the sole conditions of recovery shall be that claimant is a person described in section 9100 of the Civil Code, and has not been paid the full amount of his claim and that Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned and the provisions of sections 2819 and 2845 of the California Civil Code.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract to be performed thereunder, shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of Contract, including but not limited to the provisions of sections 2819 and 2845 of the California Civil Code.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____ 20____ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

(Corporate Seal of Principal,
if corporation)

Principal (Property Name of Contractor)

By _____
(Signature of Contractor)

(Seal of Surety)

Surety

By _____
Attorney in Fact

NOTE: A copy of the Power-of-Authority to local representatives of the bonding company must be attached hereto

[INSERT NOTARY ACKNOWLEDGEMENT]

**(CALIFORNIA PUBLIC WORK)
FOR CONSTRUCTION OF**

**FIRE STATION 80- TRAINING CENTER
6585 CHERRY AVENUE
FONTANA, CALIFORNIA
BID NO.: SB-06-DE-22**

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the **City of Fontana** (sometimes referred to hereinafter as "**OBLIGEE**") has awarded to _____ (Hereinafter designated as the "**Contractor**"), an agreement dated _____, described as follows: **The construction of Fire Station No. 80 Training Center and all related onsite and offsite improvements**

(hereinafter referred to as the "**Contract**"); and

WHEREAS, said Contractor is required to furnish a bond in connection with said Contract, and pursuant to **Section 3247 of the California Civil Code**;

NOW, THEREFORE, We, _____, the undersigned Contractor, as Principal; and, _____ a corporation organized and existing under the laws of the State of California, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the **City of Fontana** and to any and all persons, companies or corporations entitled to file stop notices under **Section 3181 of the California Civil Code**, in the sum of _____ Dollars (\$ _____), said sum being not less than one hundred percent (100%) of the total amount payable by the said **OBLIGEE** under the terms of the said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if said Contractor, his or its heirs, executors, administrators, successors or assigns, or Subcontractors, shall fail to pay for any materials, provisions or other supplies, implements, machinery or power used in, upon for or about the performance of the Public Work contracted to be done, or to pay any person for any work or labor of any kind, or for bestowing skills or other necessary services thereon, or for amounts due under the **Unemployment Insurance Code** with respect to such work or labor, or for any amounts required to be deducted, withheld, and paid over to the **Employment Development Department** from the wages of employees of paid Contractor and his Subcontractors pursuant to **Section 13020 of the Unemployment Insurance Code** with respect to such work and labor as required by the provisions of **Section 3247 through 3252 of the Civil Code**, the Surety or Sureties hereon will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void.

(Page 1 of4)

In addition to the provisions herein above, it is agreed that this bond will inure to the benefit of any and all persons, companies and corporations entitled to serve stop notices under **Section 3181 of the Civil Code**, so as to give a right of action to them or their assigns in any suit brought upon this bond. The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or additions to the terms of the said Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

No final settlement between the **OBLIGEE** and the Contractor hereunder shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. Contractor and Surety agree that if the **OBLIGEE** is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay **OBLIGEE'S** reasonable attorney's fees incurred, with or without suit, in addition to the above sum. IN WITNESS WHEREOF, we have hereunto set our hands and seals this ____ day of _____, 2021.

Subscribed before me a Notary Public
in and for the County of _____
State of _____

PRINCIPAL/CONTRACTOR:

On this ____ Day of _____

By: _____

NOTARY

SURETY:

MY COMMISSION EXPIRES:

By: _____
Attorney-in-Fact

(Page 2 of 4)

IMPORTANT: Surety companies executing bonds must possess a certificate of authority from the **California Insurance Commissioner** authorizing them to write surety insurance defined in **Section 105 of the California Insurance Code**, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, it must also appear on the **Treasury Department's most current list (Circular 570 as amended)**.

THIS IS A REQUIRED FORM.

Any claims under this bond may be addressed to:

(Name and Address of Surety) _____

(Name and Address of Agent
or Representative for
Service of process in
California if different
From above) _____

(Telephone Number and Fax
Number of Surety and Agent
or Representative for service
of process in California) _____

E-MAIL: _____

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

Place Notary Seal Above _____ Signature of Notary Public _____

| | |
|---|---|
| <p>Signer's Name: _____</p> <p><input type="checkbox"/> Individual</p> <p><input type="checkbox"/> Corporate Officer Title(s): _____</p> <p><input type="checkbox"/> Partner - <input type="checkbox"/> Limited <input type="checkbox"/> General</p> <p><input type="checkbox"/> Attorney in Fact</p> <p><input type="checkbox"/> Trustee</p> <p><input type="checkbox"/> Guardian or Conservator</p> <p><input type="checkbox"/> Other:</p> | <p>Signer's Name: _____</p> <p><input type="checkbox"/> Individual</p> <p><input type="checkbox"/> Corporate Officer Title(s): _____</p> <p><input type="checkbox"/> Partner - <input type="checkbox"/> Limited <input type="checkbox"/> General</p> <p><input type="checkbox"/> Attorney in Fact</p> <p><input type="checkbox"/> Trustee</p> <p><input type="checkbox"/> Guardian or Conservator</p> <p><input type="checkbox"/> Other:</p> |
| <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <u>Right Thumbprint of Signer</u> <u>Top of thumb here</u> </div> | <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <u>Right Thumbprint of Signer</u> <u>Top of thumb here</u> </div> |
| <p>Signer is Representing:</p> | <p>Signer is Representing:</p> |

**SPECIAL PROVISIONS
FOR THE CONSTRUCTION OF
FIRE STATION NO. 80 - TRAINING CENTER
6585 CHERRY AVENUE, FONTANA, CALIFORNIA**

BID NO.: DE-26-01-SP

EXCEPT AS SPECIFIED BELOW, 2024 EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC), COMMONLY REFERRED TO AS "THE GREEN BOOK", WILL APPLY TO, AND CONTROL THIS WORK. THE SECTION NUMBERS OF THE FOLLOWING SPECIAL PROVISIONS COINCIDE WITH THOSE OF THE STANDARD SPECIFICATIONS. ONLY THOSE SECTIONS REQUIRING AMENDMENT OR ELABORATION, OR SPECIFYING OPTIONS, ARE CALLED OUT.

PART 1 - GENERAL PROVISIONS

SECTION 1 – GENERAL, TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

1-1 GENERAL

[Add the following]:

All work shall be done in accordance with the Standard Specifications for Public Works Construction (2021 Edition and all subsequent supplements), hereinafter referred to as Standard Specifications; the State of California Department of Transportation Standard Specifications (Latest Edition and all subsequent supplements), hereinafter referred to as Caltrans Standard Specifications Latest Edition; Plans, Sketches and Spreadsheets herein, Standard Construction Drawings; and these Special Provisions. The specifications are divided into eight parts, although Part Seven (7) and Part Eight (8) are often supplemented with Technical Specifications.

1-2 TERMS AND DEFINITIONS

[Add the following]:

| | |
|---------------------|----------------------------|
| City | - City of Fontana |
| Agency/Owner | - City of Fontana |
| Board | - City Council |
| County | - County of San Bernardino |
| Engineer | - City Engineer |
| Federal | - United States of America |
| State | - State of California |

| | |
|------------------------------|---|
| Caltrans | - State of California Department of Transportation |
| SSPWC | - Standard Specifications for Public Works Construction |
| SBCFCD | - San Bernardino County Flood Control District |
| Architect | PBK Architects |
| Civil Engineer | - MSL Engineering |
| Geotechnical Engineer | - TBD |

1-7 AWARD AND EXECUTION OF CONTRACT

1-7.1 General [Add the following]:

Within ten (10) working days after the date of the Notice to Award, the Contractor shall execute and return the following contract documents to the **City**:

Contract Agreement
Contract Performance Bond
Payment Bond
General Liability and Automobile Liability
Insurance Certificate and Endorsement Forms
Worker's Compensation and Employer's Liability
Insurance Certificate and Endorsement Forms
Construction Schedule

Failure to comply with the above will result in annulment of the award and forfeiture of the Proposal Guarantee.

The Contract Agreement shall not be considered binding upon the **City** until executed by the authorized **City** officials.

A corporation to which an award is made may be required, before the Contract Agreement is executed by the **City**, to furnish evidence of its corporate existence, of its right to enter into contracts in the State of California, and that the officers signing the contract and bonds for the corporation have the authority to do so.

1-7.2 Contract Bonds [Replace paragraphs 3 and 4 with the following]:

The Contractor shall provide 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, or until thirty-five (35) days after the

date of recordation of the Notice of Completion, whichever occurs later, 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, or until one year after date of Acceptance, whichever occurs later.

SECTION 2 – SCOPE OF THE WORK

2-1 WORK TO BE DONE [Add the following]

The work to be done consists of furnishing all materials, equipment, tools, labor, transportation, services and incidentals as required by the contract documents to complete the work for the above stated project.

The general items of work to be done hereunder consist of construction of:

Fire Station 80 & Training Center Plans

Drawing T1 through T6

Drawing C1 through C11

Drawing A1.1 through A8.7

Drawing S0.1 through S4.4

Drawing M0.1 through M3.2

Drawing P0.1 through P5.1

Drawing E0.1 through E4.3

Drawing L1.1 through L2.2

Training Tower Plans Drawing 0 through 7 (Reference Only)

LOCATION OF WORK

The general location of the work is:

6585 Cherry Avenue, Fontana CA, 92336

2-2 PERMITS

[Replace with the following]:

Prior to the start of any work, the Contractor shall obtain the applicable City permits and make arrangements for City inspections. The Contractor and all subcontractors shall each obtain any and all other permits, licenses, inspections, certificates or authorizations required by any governing body or public utility. Payment for this work shall be included in the bid items of work and no additional compensation will be allowed. The City will waive the usual City encroachment permit fees. The Contractor will be required to pay for any fees for any permit associated with City Building & Safety Division and shall pay fees and any

cost associated with permits from other agencies. The Contractor shall provide the City with copies of all permits prior to commencement of construction. If the permit or license of any agency or public utility is more restrictive than the standard specifications, standard drawings or the special provisions, the requirements of the permit or license shall take precedence for that portion of the work in the agency or public utility right of way. 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. For Private Contracts, the Contractor shall obtain all permits incidental to the Work or made necessary by its operation, and pay all costs incurred by the permit requirements. The Contractor shall pay all business taxes or license fees that are required for the Work.

2-3 RIGHT OF WAY

[Add the following]:

The **Contractor** shall verify that the acquisition(s) is completed prior to beginning any work outside the public right of way. All cost for remobilization, downtime, etc., due to delays in obtaining the required rights of way, easements, and rights of entry shall be considered included in various bid items and no additional compensation will be allowed.

2-11 PROCEDURE FOR RESOLVING CLAIMS

[Add the following]:

Contractor shall timely comply with any and all requirements of the Contract Documents pertaining to notices and requests for changes to the Contract time or Contract Price as a prerequisite to filing any claim governed by this Section. The failure to timely submit a notice of delay or notice of change, or to timely request a change to the time for completion or Contractor's compensation, or to timely provide any other notice or request required herein shall constitute a waiver of the right to further pursue the claim under the Contract or at law.

A. Intent. Effective January 1, 1991, Section 20104 et seq., of the California Public Contract Code prescribes a process utilizing informal conferences, non-binding judicial supervised mediation, and judicial arbitration to resolve disputes on construction claims of \$375,000 or less. Effective January 1, 2017, Section 9204 of the Public Contract Code prescribes a process for negotiation and mediation to resolve disputes on construction claims. The intent of this Section is to implement Sections 20104 et seq. and Section 9204 of the California Public Contract Code. This Section shall be construed to be consistent with all applicable law, including but not limited to these statutes.

B. Claims. For purposes of this Section, "Claim" means a separate demand by the Contractor for:

1. An adjustment to the time for completion including, without limitation, for relief from damages or penalties for delay assessed by the City;

2. Payment by the City of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract, payment for which is not otherwise expressly provided or to which the Contractor is not otherwise entitled; or

3. An amount the payment of which is disputed by the City.

A "Claim" does not include any demand for payment for which the Contractor has failed to provide notice, request a Change Order, or otherwise failed to follow any procedures contained in the Contract Documents.

C. Filing Claims. Claims governed by this Section may not be filed unless and until the Contractor completes any and all requirements of the Contract Documents pertaining to notices and requests for changes to the Contract time or Contract Price, and Contractor's request for a change has been denied in whole or in part. Claims governed by this Section must be filed no later than thirty (30) Days after a request for change has been denied in whole or in part or after any other event giving rise to the Claim. The Claim shall be submitted in writing to the City and shall include on its first page the following words in 16-point capital font: "THIS IS A CLAIM." The Claim shall include all information and documents necessary to substantiate the Claim, including but not limited to those identified below. Nothing in this Section is intended to extend the time limit or supersede notice requirements otherwise provided by Contract Documents. Failure to follow such contractual requirements shall bar any Claims or subsequent proceedings for compensation or payment thereon.

D. Documentation. The Contractor shall submit all Claims in the following format:

1. Summary description of Claim including basis of entitlement, merit and amount of time or money requested, with specific reference to the 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. Narrative analysis of Claim merit

5. Analysis of Claim cost, including calculations and supporting documents

6. Time impact analysis in the form required by the Contract Documents or, if the Contract Documents do not require a particular format, CPM format, if an adjustment of the Contract time is requested

E. City's Response. Upon receipt of a Claim pursuant to this Section, the City shall conduct a reasonable review of the Claim and, within a period not to exceed 45 Days, shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Any payment due on an undisputed portion of the Claim will be processed and made within 60 Days after the City issues its written statement.

1. If the City needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the Claim, and the City's 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 City shall have up to three (3) Days following the next duly publicly noticed meeting of the City's governing body after the 45-Day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.

2. Within 30 Days of receipt of a Claim, the City may request in writing additional documentation supporting the Claim or relating to defenses or Claims the City may have against the Contractor. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the City and the Contractor. The City's written response to the Claim, as further documented, shall be submitted to the Contractor within 30 Days (if the Claim is less than \$50,000, within 15 Days) after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

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

G. Mediation. 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 City shall provide the Contractor 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 City 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 City and the Contractor sharing the associated costs equally. The City and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing, unless the parties agree to select a mediator at a later time.

1. 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.

2. 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.

3. Unless otherwise agreed to by the City 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.

4. The mediation shall be held no earlier than the date the Contractor completes the Work or the date that the Contractor last performs Work, whichever is earlier. All unresolved Claims shall be considered jointly in a single mediation, unless a new unrelated Claim arises after mediation is completed.

H. Procedures After Mediation. If following the mediation, the Claim or any portion remains in dispute, the Contractor must file a Claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code prior to initiating litigation. For purposes of those provisions, the running of the period of time within which a Claim must be filed shall be tolled from the time the Contractor submits his or her written Claim pursuant to subdivision (a) until the time the Claim is denied, including any period of time utilized by the meet and confer conference.

I. Civil Actions. The following procedures are established for all civil actions filed to resolve Claims of \$375,000 or less:

1. Within 60 Days, but no earlier than 30 Days, following the filing or responsive pleadings, the court shall submit the matter to non-binding mediation unless waived by mutual stipulation of both parties or unless mediation was held prior to commencement of the action in accordance with Public Contract Code section 9204 and the terms of this Contract. The mediation process shall provide for the selection within 15 Days by both parties of a disinterested third person as mediator, shall be commenced within 30 Days of the submittal, and shall be concluded within 15 Days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court.

2. If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1114.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration. In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, (A) arbitrators shall, when possible, be experienced in construction law, and (B) any party appealing an arbitration award who does not obtain

a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney's fees on appeal of the other party.

J. Government Code Claim Procedures.

1. This Section does not apply to tort claims and nothing in this Section is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.5 of Title 1 of the Government Code.

2. In addition to any and all requirements of the Contract Documents pertaining to notices of and requests for adjustment to the Contract time, Contract Price, or compensation or payment for additional work, Disputed Work, construction claims and/or changed conditions, the Contractor must comply with the claim procedures set forth in Government Code Section 900, et seq. prior to filing any lawsuit against the City.

3. Such Government Code claims and any subsequent lawsuit based upon the Government Code claims shall be limited to those matters that remain unresolved after all procedures pertaining to adjustment of the Contract time or Contract Price for additional work, Disputed Work, construction claims, and/or changed conditions have been followed by Contractor. If Contractor does not comply with the Government Code claim procedure or the prerequisite contractual requirements, Contractor may not file any action against the City.

4. A Government Code claim must be filed no earlier than the date the Work is completed or the date the Contractor last performs Work on the Project, whichever occurs first. A Government Code claim shall be inclusive of all unresolved Claims known to Contractor or that should reasonably be known to Contractor excepting only new unrelated Claims that arise after the Government Code claim is submitted.

K. Non-Waiver. The City's failure to respond to a Claim from the Contractor within the time periods described in this Section or to otherwise meet the time requirements of this Section shall result in the Claim being deemed rejected in its entirety, and shall not constitute a waiver of any rights under this Section.

SECTION 3 – CONTROL OF THE WORK

3-3 SUBCONTRACTORS

[Add the following]:

This written statement shall be in form of Caltrans Local Assistance Procedures Manual (LAPM) Exhibit 16-B Subcontracting Request Form.

3-7 CONTRACT DOCUMENTS

3-7.1 General [Replace the first paragraph with the following]:

The Contractor shall maintain a control set of Plans and Specifications on the project site at all times. All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show the as-built conditions. Upon completion of all work, the Contractor shall return the control set to the **Engineer**. Final payment will not be made until this requirement is met. **Payment for the as-built plans shall be considered as included in the contract prices paid for the related items of work, and no additional compensation will be allowed therefore.**

The Standard Specifications of the **CITY** are contained in the latest edition of the **STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, ("Green Book")** including all supplements as written and promulgated by the Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association and the Southern California District of the Associated General Contractors of California.

Copies of these Standard Specifications are available from the publisher:

**Building News, Incorporated
10801 National Boulevard, Suite 100
Los Angeles, California 90064
(800) 873-6397, Fax: (714) 535-8078**

The Standard Specifications set forth above will control the general provisions, construction material, and construction methods for this contract except as amended by the Plans, Special Provisions, Project Manual or other contract documents.

The section numbers of the following Special Provisions coincide with those of the Standard Specifications for Public Works Construction. Only those sections requiring amendment or elaboration, or specifying options, are called out.

In case of conflict between the Standard Specifications and the Special Provisions, the Special Provisions shall take precedence over and be used in lieu of such conflicting portions.

References in the **Special Provisions** to "**CALTRANS Standard Specifications**" shall mean the **Standard Specifications (latest edition) of the State of California, Department of Transportation.**

In case of conflict between Volume 1 and the Architect's Project Manual (Volume 2), the Architect's Project Manual shall take precedence and be used in lieu of such conflicting portions.

3-7.2 Precedence of the Contract Documents [Replace the second paragraph with the following]:

Detail drawings shall take precedence over general drawings. The instructions to bidders shall take precedence over the notice inviting bids. Architectural provisions within the Project Manual (Volume 2) shall take precedence over general provisions in Volume 1.

3-8 SUBMITTALS

3-8.1 General [Add the following]:

The **City's Project Manager** will provide a list of expected submittals. The Contractor shall provide said submittals within thirty (30) calendar days following Contract award or receipt of said list, whichever occurs later. Failure of the Contractor to provide submittals within the time specified above may provide grounds for termination of the Contract for default, in accordance with Section 6-7.

Traffic Control Plan (TCP) submittals shall be included in controlling operation(s) submittals. Contractor will not be allowed to start the Work in the Public Right-of-Way until TCP has been approved.

3-8.3 Shop Drawings [Add the following]:

All shop drawings and submittals required by the plans and specifications shall be submitted to the **City's Project Manager**. Contractor shall submit within ten (10) working days following "Notice to Proceed", a schedule of required submittals and shop drawings to the **City's Project Manager**.

3-10 SURVEYING

3-10.1 General [Replace with the following]:

The **Contractor** shall provide surveying and construction staking required for the construction of this project. The cost of surveying and/or construction staking shall be considered as included in the lump sum price paid for construction and no additional compensation will be made there for. The Contractor shall preserve survey stakes and marks for the duration of their usefulness.

Unless otherwise specified in the Special Provisions, stakes shall be set and stationed for curbs, headers, sewers, storm drains, structures, and rough grade. A corresponding cut or fill to finished grade (or flowline) shall be indicated on a grade sheet.

3-12 WORK SITE MAINTENANCE

3-12.1 General [Add the following to the first paragraph]:

Contractor shall be required to use City's franchise hauler for construction debris disposal services.

3-12.3 Noise Control [Replace with the following]:

A noise level limit of 86 dbA at a distance of fifty feet shall apply to all construction equipment on or related to the job, whether owned by the Contractor or not. The use of excessively loud warning signals shall be avoided except in those cases required for the protection of personnel.

3-12.4.2 Storage in Public Streets [Replace with the following]:

Construction materials and equipment shall not be stored in streets, roads, or highways unless otherwise specified or 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 or approved by the Engineer. Immediately after placing backfill, all excess excavated material shall be removed.

No more than five hundred (500) linear feet of pipeline shall be stockpiled on the site, regardless of size. The Contractor shall assume full responsibility for any damage caused by stockpiling and shall repair same at his expense. The Contractor shall also be responsible for providing traffic control as required to protect the public from hazards caused by stockpiling within the right of way. The Contractor shall be responsible for obtaining the applicable City permit for stockpiling within the public right of way (Permit Fees will be waived for City contracts). Payment for the above, if any, will be deemed as included in the items of work and no additional compensation will be allowed.

The Contractor may, at his own expense, maintain and operate a work and storage area outside the public right-of-way. In such case the Contractor shall submit to **City** written authorization from the owners of the subject property prior to occupation. Occupation of site without written authorization shall be grounds for immediate suspension of work. Location of site to be approved by **City**. Condition and operation of yard shall conform to these specifications. The Contractor shall assume full responsibility for all damage to the site resulting from his operations and shall repair and/or replace same, at his own expense, to the satisfaction of the owner of the subject property.

The Contractor shall vacate site and return it to pre-project condition within five (5) working days following completion of work for which it was intended. The Contractor shall obtain a written release from the property owner accepting the condition of the vacated site and releasing the Contractor from any further clean-up or restoration work and shall submit a copy of such release to the **City**. The **Notice of Completion** will not be issued, and final retention payment will not be made, until said release is submitted and the **City** has approved the repairs, replacement and restoration of the site.

3-12.6 Water Pollution Control [Replace the entire section with the following]:

3-12.6.1 Scope of Work

- A.** The Contractor shall assume sole, complete, and continuous responsibility for storm water runoff management and erosion/sedimentation control during construction. The Contractor shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations that govern

the Contractor's operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

- B.** The Contractor shall prepare a storm water pollution prevention plan for all associated construction activities. This plan shall include drawings showing methods for erosion and sediment control, sediment treatment control, wind erosion, vehicle and equipment tracking control, and non-storm water waste management. The plan shall outline what measures will be used as conditions change along the alignment. The plan shall also include a description of the sequence of construction and all storm water control procedures to be used.
- C.** The Contractor shall fully comply with all applicable state and local regulations and requirements related to storm water management and sedimentation and erosion control including **San Bernardino County, City of Fontana, and Caltrans** requirements.
- D.** The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to perform all installation, maintenance, removal, and area cleanup related to erosion control devices and practices necessary to prevent the movement of sediment from the construction site to off-site areas including surface waters, storm drains, and flood control facilities.
- E.** The Contractor shall implement **Best Management Practices (BMP)** including good housekeeping practices and erosion and sedimentation control to prevent the direct and indirect contribution of any contaminants into the storm drain system or waters of the United States.
- F.** The **Storm Water Pollution Prevention Plan (SWPPP)** shall identify pollution sources that may adversely affect the quality of storm water discharges associated with the project and shall identify water pollution control measures, hereafter referred to as control measures, to be constructed, implemented, and maintained in order to reduce to the extent feasible pollutants in storm water discharges from the construction site during construction under this contract.

The (SWPPP) shall incorporate control measures in the following categories:

- a. Soil stabilization
 - b. Sediment control
 - c. Tracking control
 - d. Wind erosion control
 - e. Non-storm water control
 - f. Waste management and material pollution control
- G.** The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the requirements set forth in this Section **"Water Pollution Control"** including, but not limited to, compliance with the applicable provisions of the Manuals and Federal, State, and local regulations. For the purposes of this paragraph, costs and liabilities

include, but are not limited to, fines, penalties, and damages whether assessed against the **City** or the Contractor, including those levied under the **Federal Clean Water Act** and the **State Porter Cologne Water Quality Act**.

In addition to the remedies authorized by law, an amount of the money due the Contractor under this contract, as determined by the **City of Fontana**, may be retained by the **City of Fontana** until disposition has been made of the costs and liabilities.

3-12.6.2 Submittals

- A.** The Contractor shall provide SWPPP within thirty (30) calendar days following Contract award or receipt of submittal list, whichever occurs later. Submit "**Storm Water Pollution Plan**" (**SWPPP**) to the **Engineer** for approval, for all proposed storm water control facilities, defining the sequence of construction, and describing all erosion/sedimentation control procedures to be used.
- B.** At least **ten (10) days prior to the start of any work with the potential to cause water pollution**, submit to the **Engineer** for approval, technical product literature for all commercial products to be used for storm water management and erosion/sedimentation control.
- C.** All Qualified SWPPP Developers (QSDs) and Qualified SWPPP Practitioners (QSPs) shall be current in the required certifications for the 2022 Construction General Permit (CGP). Certifications will be included in the SWPPP document.
- D.** If a Delegate QSP is proposed for the field inspections, the proposed Delegate QSP will require approval. As is required in the 2022 CGP, the Project QSD shall provide the following information for the proposed Delegate QSP: As is based on the guidelines set by the State's Construction General Permit Training Team:
 - a. Foundational training for all delegates regarding stormwater compliance roles and responsibilities, forecast information, and documentation and reporting procedures; and
 - b. Site-specific training regarding visual inspections, sampling procedures, and/or SWPPP and BMP implementation activities relevant to the delegate's assigned responsibilities.

3-12.6.3 Quality Assurance

- A.** The Contractor shall be responsible for the timely installation of all storm water management and erosion/sediment control devices and practices necessary to prevent the movement of sediment from the construction site to off-site areas or into waterways via surface runoff or underground drainage systems. Measures necessary to prevent the movement of sediment off-site shall be installed, maintained, removed, and cleaned up at the expense of the Contractor. No additional charges to the **City** will be considered.

- B.** The **SWPPP** shall be amended if the **SWPPP** has not achieved the objective of reducing pollutants in storm water discharges. Amendments shall show additional control measures or revised operations, including those in areas not shown in the initially approved **SWPPP**, which are required on the project to control water pollution effectively. Amendments to the **SWPPP** shall be submitted for review and approval of the **Engineer** in the same manner specified for the initially approved **SWPPP**. Amendments shall be dated and attached to the on-site **SWPPP** document.

The Contractor shall keep a copy of the SWPPP, together with updates, revisions and amendments at the project site.

3-12.6.4 Materials

- A.** The Contractor shall use the **California Storm Water Best Management Practice Handbook for Construction Activity, Latest Edition**, as a reference in selecting appropriate **BMP's** for the sites. Materials, including those used for storm drain inlet protection, slope protection and vehicle-tracking control shall be in conformance with this handbook.

3-12.6.5 SWPPP Implementation

- A.** Work with the potential to cause water pollution shall not begin until the **Engineer** has approved the storm water management plan.
- B.** Storm water management and erosion/sediment controls shall be installed in accordance with the approved storm water management plan and the procedures and requirements described in the **California Storm Water Best Management Practice Handbook for the Construction Activity, Latest Edition**.
- C.** Unless otherwise directed by the **Engineer** or specified in these special provisions, the Contractor's responsibility for **SWPPP** implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in **Section 6-6, "Suspension of Work" of the Standard Specifications**. Requirements for installation, construction, inspection, maintenance, removal, and disposal of control measures are specified in the Manuals and these special provisions.
- D.** Soil stabilization practices and sediment control measures, including minimum requirements, shall be provided throughout the rainy season, defined as between **October 15th and April 30th**.
- E.** Throughout the rainy season, active soil-disturbed areas of the project site shall be fully protected at the end of each day with soil stabilization practices and sediment control measures unless fair weather is predicted through the following workday. The weather forecast shall be monitored by the Contractor on a daily basis. **The National Weather Service** forecast shall be used. An alternative weather forecast proposed by the Contractor may be used if

approved by the **Engineer**. If precipitation is predicted prior to the end of the following workday, construction scheduling shall be modified, as required and functioning control measures shall be deployed prior to the onset of the precipitation.

- F.** The Contractor shall implement, year-round and throughout the duration of the project, control measures included in the **SWPPP** for tracking control, wind erosion control, non-storm water control, and waste management and material pollution control.
- G.** The Engineer may order the suspension of construction operations that create water pollution if the Contractor fails to conform to the provisions in this Section, "Water Pollution Control" as determined by the Engineer. All costs associated with the suspension of work are non-coming by the City. The Contractor will not be entitled to any increase in contract price or completion time extension for this suspension of construction operations.

3-12.6.6 Inspections and Maintenance

E. Inspections

Make a visual inspection of all devices as necessary to ensure proper operation but not less than once per week and as is required for all rain events per the 2022 CGP . If such inspection reveals that additional measures are needed to prevent movement of sediment to off-site areas, promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.

QSD/QSP inspection documentation will be submitted to the City of Fontana Project manager within 5 days of inspection completion.

The Special City Staff from the Environmental Section may inspect the construction site for NPDES compliance and issue correction notice as deemed necessary by such personnel. The Contractor will implement the corrective measures as required by such inspections and failure to do so may result in work stoppage and other legal actions permitted under the law.

B. Maintenance

Routine maintenance consisting of debris removal, silt/sediment removal, clearing of vegetation around flow control devices to prevent clogging, and maintenance of healthy vegetative cover, shall be performed.

During the rainy season, inspections of the construction site shall be conducted by the Contractor to identify deficient measures, as follows:

- a. Prior to a forecasted Qualifying Rain Event (QSE) storm.
- b. After all precipitation that causes runoff capable of carrying sediment from the construction site.

- c. At twenty-four (24) hour intervals during extended precipitation events.
- d. After the rain event is completed.

3-12.6.7 Flow and Acceptance of Water

It is anticipated that storm, surface or other waters will be encountered at various times during the work herein contemplated. The Contractor, by submitting a bid, acknowledges that he has investigated the risk arising from such waters and has prepared his bid accordingly; and Contractor submitting a bid assumes all said risk.

The Contractor shall conduct his operations in such a manner that storm, or other existing waters, may proceed uninterrupted along their existing drainage courses. Diversions of water for short reaches to protect construction in progress will be permitted if public and/or private properties, in the opinion of the Engineer, are not subject to probability of damage. The Contractor shall obtain written permission from the applicable public agency or property owner before any diversion of water outside of street right of way will be permitted.

3-12.6.8 Dewatering

The Contractor shall provide and maintain at all times during construction ample means and devices to promptly remove and properly dispose of all water entering the excavations or other parts of the work. No concrete footing or floor shall be laid in water nor shall water be allowed to rise over them until the concrete or mortar has set at least two (2) hours. Water shall not be allowed to rise unequally against the wall for a period of twenty-eight (28) days. Dewatering for the structures and pipelines shall commence when ground water is first encountered, and shall be continuous until such time as water can be allowed to rise in accordance with the above paragraph.

Dewatering shall be accomplished by well points or some other method which will insure a dry hole and preservation of final lines and grade of the bottoms of excavation, all subject the approval of the Engineer.

Disposal of water from dewatering operations shall be the sole responsibility of the Contractor. Disposal methods shall conform to the Porter-Cologne Water Quality Control Act, 1974, the Federal Water Pollution Control Act Amendments of 1972, and the California Administrative Code, Title 23, Chapter 3.

Full compensation for dewatering shall be considered as included in the contract prices paid for the related items of work, and no additional compensation will be allowed therefore.

3-12.6.9 Furnishing and Applying Water

Furnishing and applying water shall conform to the applicable provisions of the Standard Specifications. Full compensation for furnishing and applying water will be considered as included in the prices paid for various items of work and no additional compensation will be made therefore. The Contractor shall make application for a permit for

a temporary water meter as required.

3-12.6.10 Removal and Final Cleanup

Once the construction site has been fully stabilized against erosion, the Contractor shall remove sediment control devices and all accumulated silt; and dispose of silt and waste materials in proper manner. All areas disturbed during this process shall be regraded and stabilized against erosion using surfacing materials.

3-12.6.11 Payment and Retention

Payment for the implementation and maintenance of BMP's, SWPPP or WPCP, including all City, County, or State permit and inspection fees, as applicable, shall be considered as included in the Contract Bid Price for various items of work, and no additional compensation will be allowed there for.

3-13 COMPLETION, ACCEPTANCE, AND WARRANTY

3-13.1 Completion [Add the following paragraph]:

Completion will be in accordance with the Contract Documents, all applicable codes and to the full satisfaction and acceptance of the City, County, State and Federal authorities, having jurisdiction over the project so that the project or specified construction can be utilized for the purpose for which it was intended. Completion shall include Contractor's furnishing of all Contractors' "As-Built" data as required by the City and the Engineer to comply with the requirements of the appropriate governmental authorities and acceptance by any governmental authority or municipality.

3-13.2 Acceptance [Add the following after the first sentence]:

For the purpose of this article, "formal acceptance of the Work by the Council" shall mean the acceptance of the Work by the City Council per Fontana Municipal Code, but not for the purpose of extinguishing any covenant or agreement on the part of the Contractor to be performed or fulfilled under this Contract which has not, in fact, been performed or fulfilled at the time of such acceptance all of which covenants and agreements shall continue to be binding on the Contractor until they have been fulfilled.

3-14 PROJECT NOTIFICATION

[Add the following]:

The Contractor shall furnish and install a project sign. The sign shall be fabricated by a sign shop employed in the commercial business. The material for the sign shall be 6- foot x 8-foot CDX plywood, select structural. All exposed wood parts of the sign shall be painted, inclusive of posts and angle bracing. The finish and lettering of the sign shall be of the same quality as that indicated in the attached sample of these specifications.

The Contractor shall erect the sign at a location designated by the City's representative. Before the project sign installation can occur, the Contractor shall notify the Engineer or Inspector and receive directive to proceed with installation after the sign

has been verified to meet requirements. The erection of the sign shall be designed to be stable when subjected to high wind gusts. The sign must be installed on 6 x 6 posts at 96" above existing grade. The sign shall be installed and anchored with a minimum of ½" thru lag bolts with washers at three locations spaced approximately equidistant on each post. The location of the drilling on the sign must not be on the NAME/TITLE; anchoring must be angle-braced or "kicked" in both directions at approximately 45-degrees to resist the prevailing northeast to southwest winds with 2 x 6 bracing; utilization of a Simpson connector at post/angle-brace should be utilized. The point of connection shall be at the bottom of the sign when the angle brace is in front of the sign. Anchorage into the existing grade shall be four feet minimum. The Contractor shall maintain the sign for graffiti and shall provide a new sign if the graffiti or other event which damages the sign cannot remediate the sign. The Contractor may apply an anti-graffiti coating or cover the sign with clear plexiglass as an alternative. The conditions for sign maintenance would remain the same, resulting in sign- replacement or plexiglass replacement. At the end of construction, the Contractor shall be responsible for removal and safe disposal of this sign board and related material.

Payment for project notifications, including the project sign, shall be deemed as included in the items of work as shown on the proposal bid sheet and no additional compensation will be allowed.

SECTION 4 - CONTROL OF MATERIALS

4-1 GENERAL

[Replace the third paragraph with the following]:

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

4-4 TESTING

[Replace the first paragraph with the following]:

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. All initial testing will be performed under the direction of the Engineer, and at no expense to the Contractor. The Contractor shall pay for retests due to failure to meet specifications.

SECTION 5 – LEGAL RELATIONS AND RESPONSIBILITIES

5-3 LABOR

[Add the following]:

5-3.3 Payroll Records [Add the following]:

Copy of the Certified Payroll Records submitted to the Department of Industrial Relations shall be submitted to the City by the tenth day of each month. Progress payments will be withheld pending receipt of any outstanding reports.

5-3.6 Equal Employment Opportunity

The Contractor, and all subcontractors, suppliers and vendors shall comply with applicable **City**, **State** and **Federal** orders regarding affirmative action to ensure equal employment opportunities and fair employment practices. Failure to file any report due under said orders will result in suspension of periodic progress payments. The Contractor shall ensure unlimited access to the job site for all equal employment opportunity compliance officers.

5-4 INSURANCE

[Replace the entire Subsection with the following]:

5-4.1 Indemnification

The Contractor's obligation to provide indemnification shall be as set forth in **Article VI of the Contract Agreement**.

5-4.2 Insurance Requirements

The Insurance afforded by this policy shall not be cancelled, suspended or modified, or renewal of such a policy declined unless notice is mailed, by certified mail return receipt requested, to the **City** at least forty-five (45) days prior to the effective date of the nonrenewable, suspension or modification or at least thirty (30) days prior to the effective date of cancellation.

The Contractor shall maintain during the life of the contract and the entire progress of the work and until sixty (60) days after notice of completion has been filed a Comprehensive Automobile and General Liability policy. The policy shall provide for not less than the following amounts:

| | | |
|-----------------------|--------------|---|
| General Liability: | \$5,000,000 | each occurrence |
| | \$10,000,000 | aggregate |
| Bodily Injury | \$1,000,000 | each person |
| | \$2,000,000 | each occurrence |
| | \$1,000,000 | each accident for products and completed operations |
| Property Damage | \$1,000,000 | each accident |
| Worker's Compensation | \$1,000,000 | |

Automobile Liability Insurance to include all owned, non-owned or hired vehicles, including loading and unloading thereof:

| | | |
|---|-------------|-----------------|
| Automobile Liability: | \$5,000,000 | each accident |
| Automobile Bodily Injury | \$1,000,000 | each person |
| | \$2,000,000 | each occurrence |
| Automobile Property Damage | \$1,000,000 | each accident |
| Contractors' Pollution Legal Liability: | \$1,000,000 | each occurrence |
| | \$2,000,000 | aggregate |

All liability insurance policies shall bear an endorsement or shall have attached a rider whereby it is provided that, in the event of expiration or proposed cancellation of such policies for any reason whatsoever, the **City** shall be notified by registered mail, return receipt requested, giving a sufficient time before the date thereof to comply with any applicable law or statute, but in no event less than thirty (30) days before expiration or cancellation is effective.

The following statement shall be included on the insurance certificate:

Additional Insured: The insurer agrees that the **City**, it's City Council, and/or all City Council appointed groups, committees, boards and any other City Council appointed body, and/or elective and appointive officers, servants, agents or employees of the **City** when acting as such are additional insured hereunder, for the acts of the insured, and such insurance shall be primary to any insurance of the **City**.

The Contractor agrees to protect, defend and indemnify the **City** against loss, damage or expense by reason of any suit claims, demands, judgments and causes of action caused by the Contractor, his employees, agents or any subcontractor, or by any third party arising out of or in consequence of the performance of all or any operations covered by the Certificate of Insurance. The Contractor, at his option, may include such coverage under his General Liability coverage.

5-4.3 Contractor's Liability

The **City**, its **City Council** or the **Engineer** shall not be answerable or accountable in any manner for any loss or damage that may happen to the work or any part thereof; or for any of the materials or other things used or employed in performing the work; or for injury to any person or persons, either workmen or the public; or for damage to any person or persons, either workmen or the public; or for damage to adjoining property from any cause which might have been prevented by the Contractor, or his workmen, or any one employed by him; against all of which injuries or damages to persons and property the Contractor, having control over such work, must properly guard. The Contractor shall be responsible for any damage to any person or property resulting from defects or obstructions or any time before its completion and final acceptance, and shall indemnify and save harmless as set forth in **Article VI of the Contract Agreement**, the **City**, its **City Council** and the **Engineer** from all suits or actions of every name and description brought for, or on account of, any

injuries or damages received or sustained by any person or persons, by the Contractor, his servants or agents, in the construction of the work or in consequence of any negligence in guarding the same, in improper materials used in its construction, by or on account of any act or omission of the Contractor or his agents, and so much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the **City** may be retained by the **City** until disposition has been made of such suits or claims for damages aforesaid.

If, in the opinion of the **Engineer**, the precautions taken by the Contractor are not safe or adequate at any time during the life of the Contract, the **Engineer** may order the Contractor to take further precautions, and if the Contractor shall fail to do so, the **Engineer** may order the work done by others and charge the Contractor for the cost thereof, such cost to be deducted from any monies due or becoming due the Contractor. Failure of the **Engineer** to order such additional precautions, however, shall not relieve the Contractor from his full responsibility for public safety.

5-4.4 Certificates of Insurance

The Contractor shall not commence work until Contractor has delivered to the City a Certificate of Insurance executed by a duly authorized agent of the insurance carrier specifying that the insurance affords coverage for all matters set forth in this contract in at least the minimum amount required. All of said certificates must show the correct job reference and location of the job site and are not to state "covering all tracts." Contractor at his own cost and expense shall insure this interest against loss resulting from fire, earth settlement, theft, embezzlement, riot or any other cause whatsoever.

5-7 SAFETY

5-7.4 Hazardous Substances [Add the following]:

Public Contract Code Section 7104 requires a contractor to notify the public entity of various problems, including the existence of possible hazardous materials, as follows: If the work entails digging a trench or other excavation four (4) feet or more in depth, contractor shall promptly, and before the following conditions are disturbed, notify the City in writing of any material that the contractor believes may be hazardous waste; any subsurface and latent physical conditions at the site differing from those indicated.

5-7.8.2 Thickness [Replace with the following]:

Steel plate covers shall conform to City of Fontana Standard Plan 1009.

5-7.8.3 Installation [Replace with the following]:

Steel plate cover installation shall conform to City of Fontana Standard Plan 1009.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF THE WORK

6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK

6-1.1 Construction Schedule [Add the following]:

The Contractor's proposed Construction Schedule identifying the order of operations shall be submitted to the **Engineer** for review, prior to the start of any work. The schedule shall be supported by written statements from each supplier of materials or equipment indicating that all orders have been placed and acknowledged and setting forth the dates that each item will be delivered. Prior to issuing the Notice to Proceed, the **Engineer** will schedule a preconstruction meeting with the Contractor to review the proposed Construction Schedule and delivery dates, arrange the utility coordination, discuss construction methods and clarify inspection procedures.

The Contractor shall submit periodic Progress Reports, or a two week look-ahead schedule, to the **Engineer** within three (3) Working Days of request. The Progress Report shall include an updated Construction Schedule. Any deviations from the original schedule shall be explained. Progress payments will be withheld pending receipt of any outstanding reports.

The Contractor is advised as to the possibility of award of other construction projects within the proposed construction zone, within the public right of way, by the **City**, other governing agencies, or private companies. In the event of such award(s), the Contractor shall coordinate with the applicable parties as to the extent of and time required to complete their work and shall schedule his work and conduct his operations so as to permit access and time as required for the concurrent work. The Contractor shall immediately notify the **City** and the **Engineer** in the event of a delay in scheduling caused solely by this concurrent work. Payment for the above, if any, shall be deemed as included in the items of work as shown on the proposal bid sheet and no additional compensation will be allowed.

6-2 PROSECUTION OF THE WORK

[Add the following]:

The Contractor's activities shall be confined to the hours between **7:00 AM and 4:00 PM, Monday through Friday, excluding holidays**. Deviation from these hours will not be permitted without the prior consent of the **City** and the **Engineer**, except in emergencies involving immediate hazard to persons or property.

The Contractor shall obtain approval for any deviation from regular working hours or days by submitting a written request to the **City** and the **Engineer** at least five (5) working days in advance, for approval by the **City** and the **Engineer**.

In the event of either a requested or emergency deviation, inspection service fees will be charged against the Contractor. The service fees will be calculated at overtime rates, including benefits, overhead and travel time. The service fees will be deducted from any amounts due the Contractor.

6-3 TIME OF COMPLETION

6-3.1 General [Add the following]:

The Contractor shall complete all work in every detail, within **313 Working Days** after the date of Notice to Proceed, exclusive of maintenance periods. The Contractor shall place the order for materials within 14 Days of receiving an approved submittal from the City. Verification of order shall be presented to City.

6-5 USE OF IMPROVEMENT DURING CONSTRUCTION

[Add the following]:

The Contractor will assume the responsibility and liability for injury to persons or property resulting from the utilization of a traffic signal or appurtenant equipment so placed into service, except for any such injury to persons or property caused by any willful or negligent act or omission by the Agency.

6-6 SUSPENSION OF THE WORK

6-6.1 General [Add the following]:

The **City** has the right to suspend the work in whole or in part without liability for damages when in the **City's** opinion the Contractor is not complying in good faith, has become insolvent, has assigned or subcontracted any part of the work without **City's** consent, or shall fail to abide by the provisions of the Contract Documents.

In the event it is necessary for the **City** to suspend the work as provided in this section, the Contractor shall not be entitled to any additional compensation for labor, materials, or other cost or expenses which may be incurred as a result thereof. **City** shall further have the right to withhold from the Contractor any reasonable estimated sums as determined by the **Engineer** as may be required to correct the result of the Contractor's failure to abide by the provisions of the Contract Documents.

The Contractor shall remain liable to the **City** for any correction cost in excess of cost incurred. Should work be suspended in part, Contractor shall continue with other work as approved by the **Engineer**.

6-9 LIQUIDATED DAMAGES

[Replace with the following]:

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. For each consecutive calendar day in excess of the time specified for completion of the Work, as adjusted in accordance with 6-4, the Contractor shall pay to the Agency, or have withheld from monies due based on the table below, per Caltrans Local Assistance Procedures Manual (LAPM): Chapter 12.

| Total Bid | | Liquidated Damages per Day |
|---------------|---------------|----------------------------|
| From over | To | |
| \$0 | \$200,000 | \$2,800 |
| \$200,000 | \$500,000 | \$3,600 |
| \$500,000 | \$1,000,000 | \$3,600 |
| \$1,000,000 | \$2,000,000 | \$4,200 |
| \$2,000,000 | \$5,000,000 | \$5,200 |
| \$5,000,000 | \$10,000,000 | \$6,700 |
| \$10,000,000 | \$20,000,000 | \$9,500 |
| \$20,000,000 | \$50,000,000 | \$13,200 |
| \$50,000,000 | \$100,000,000 | \$16,000 |
| \$100,000,000 | \$250,000,000 | \$19,300 |

Execution of the Contract shall constitute agreement by the Agency and Contractor that the values per the table above, 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 is liquidated damages and shall not be construed as a penalty, and may be deducted from payments due the Contractor if such delay occurs.

The amount prescribed in these Special Provisions, pursuant to the authority of **Public Contract Code Section 10226** to be paid to the City or to be deducted from any payments due or to become due the Contractor for each consecutive calendar day in completing the whole or any specified portion of the work beyond the time allowed in the specifications as prescribed in these **Special Provisions, pursuant to Public Contracts Code Section 10226**.

SECTION 7 - MEASUREMENT AND PAYMENT

7-2 LUMP SUM WORK. [Add the following]

Prior to submittal of the first request for progress payment, the Contractor shall submit a detailed Schedule of Values to be used as a basis for determining progress payments. The Schedule of Values shall be equal to the lump sum bid amount 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.

7-3 PAYMENTS

7-3.1 General [Replace the last paragraph with the following]:

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 recordation of the Notice of Completion, 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.

7-3.2 Partial and Final Payment [Replace the first paragraph with the following]:

Progress payments may be submitted by the Contractor, at their discretion, unless otherwise requested by the Engineer. No more than one progress payment shall be submitted within a period of thirty (30) days. The final progress payment will not be released until the Contractor returns the control set of the Plans and Specifications showing the as-built conditions.

The Engineer will make an approximate measurement of the work performed to the closure date and as a basis for making progress payments, estimate its value based on Contract Unit Prices or in accordance with Section 7-2. When the Work has been satisfactorily completed, the Engineer will determine the quantity of work performed and prepare the final estimate.

From each progress payment, 5 percent will be deducted and retained by the Agency. The full five percent (5%) retention will be deducted from all payments. The final retention will be authorized for payment thirty-five (35) days after the date of recordation of the Notice of Completion by the City. The City Council must accept the project at an official City Council meeting prior to the recordation of the Notice of Completion.

No progress payment made to the Contractor or its Sureties will constitute a waiver of the liquidated damages specified in 6-9.

In conformance with the **State of California Public Contract Code, Section 22300**, the Contractor may substitute securities for any monies withheld by the **City** to secure performance under the contract.

At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the **City** or with a **State or Federally chartered bank as the escrow agent** who shall pay such monies to the Contractor upon notification by **City** of Contractor's satisfactory completion of the contract. The type of securities deposited and the method of release shall be approved by the **City Attorney's office**.

Before the **City** shall make the final payment, Contractor shall execute and file with the **City** a release in the form supplied by the **City**, releasing its officers, employees, representatives, and agents from any and all claims for liability relating to any undisputed contract amounts for work performed in relation to the undisputed amounts.

7-3.3 Delivered Materials [Replace with the following]:

Materials and equipment delivered but not incorporated into the work will not be included in the estimate for progress payment.

7-3.4 Mobilization [Replace with the following]:

Mobilization shall consist of work and operations, including but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to and from the project site; for the establishment of all offices, buildings and other facilities necessary for the work on this project; and for all other work and operations which must be performed or cost incurred prior to the beginning of work on the various contract items on the project site. The contractor's submitted Schedule of Values shall include Mobilization with 25% of the lump sum total paid with the first progress payment and the remaining 75% shall be paid incrementally over the life of the contract. Payment for such costs will be considered to be included in the other items of work.

7-3.5 Contract Unit Prices

7-3.5.2 Increases of More Than 25 Percent [Add the following sentence after the first paragraph]:

The Engineer may waive the adjustment in the Contract Unit Price for quantities in excess of 125 percent of the Bid quantity if the total cost for the quantities in excess of 125 percent of the Bid quantity for a particular Bid item does not exceed \$5,000.00.

7-3.8 Eliminated Items [Add the following]:

Elimination of such pay items from the contract and such action shall in no way invalidate the contract.

7-4 PAYMENT FOR EXTRA WORK

7-4.2 Basis for Establishing Costs

7-4.2.1 Labor [Replace with the following]:

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 as indicated in the Certified Payroll Record.

The use of a labor classification 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.

Direct labor costs including, 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, not included in the certified payroll records, and non-direct labor costs including superintendence, shall be considered part of the markup specified in 7-4.3.

7-4.2.3 Tool and Equipment Rental [Replace the second paragraph with the following]:

The Equipment Rates, whether rented or owned, shall be in accordance with the most current edition of the State of California Caltrans' "Labor Surcharge and Equipment Rental Rates". If a piece of equipment is not indicated in the Caltrans publication, the rate shall be an equitable rate consistent with rates prevailing locally at the time the extra work is performed.

7-4.3 Markup

7-4.3.1 Work by the Contractor [Replace with the following]:

The markups mentioned hereinafter shall include, but are not limited to, all costs for the services of superintendents, project managers, timekeepers and other personnel not working directly on the change order and pickup or yard trucks used by the above personnel. These costs shall not be reported as labor or equipment elsewhere except when actually performing work directly on the change order and then shall only be reported at the labor classification of the work performed.

The markups shall also constitute the payment to the Contractor and subcontractor(s) for all overhead costs, job site and home office, attributable to the time extension of a change order. These markups in either lump sum items or unit priced items shall constitute the full payment for all overhead costs, job-site and home office, involved with impacts, disruptions and delays of a change.

The following percentage shall be added to the Contractor's costs and shall constitute the markup for all overheads, profits, and compensations for bonding.

1. For the Contractor, for Work performed by the Contractor's own forces, 15 percent of the cost.
2. For the Contractor, for Work performed by the Contractor's subcontractor, 5 percent of the amount due the Subcontractor.
3. For each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's or Sub-subcontractor's own forces, 20 percent of the cost.
4. For each Subcontractor, for Work performed by that Subcontractor's Sub-subcontractors, 5 percent of the amount due the Sub-subcontractor.

The cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.4.2.

PART 2 - CONSTRUCTION MATERIALS

SECTION 200 – ROCK MATERIALS

200-2 UNTREATED BASE MATERIALS

200-2.5 Processed Miscellaneous Base [Replace with the Following]:

Processed Miscellaneous Base (PMB) will not be allowed for use in asphalt concrete.

SECTION 201 - CONCRETE, MORTAR AND RELATED MATERIALS

201-1 PORTLAND CEMENT CONCRETE

In addition to the materials outlined in **Section 201-1 of the Standard Specifications**, the following materials are included under **Portland Cement Concrete** unless otherwise covered by specific bid item.

201-1.1 Requirements

201-1.3.3 Concrete Specified by Class and Alternate Class [Add the Following]:

- A. Concrete specified by alternate class will not be used.
- B. Contractor shall utilize **Concrete Class 560-C-3250** for Street Surface Improvements instead of the concrete class shown in Table 201-1.3.3. All reinforced structures shall be **Class 650-CW-4000** instead of the concrete class shown in Table 201-1.3.3.
- C. **Maximum Slump:** Five (5) inches for concrete containing superplastizer admixture.

201-2 REINFORCEMENT FOR CONCRETE

201-2.2.1 Reinforcing Steel [Replace with the following]:

Unless otherwise specified, reinforcing steel shall be Grade 60 (400) billet steel conforming to ASTM A615/A615M. Steel bending processes shall conform to the requirements of the Manual of Standard Practice of the Concrete Reinforcing Steel Institute. Bending or straightening shall be performed in a manner that will not result in the steel being damaged. Kinked bars shall not be used.

201-3 EXPANSION JOINT FILLER AND JOINT SEALANTS

In addition to the materials outlined in **Section 201-3 of the Standard Specifications**, the following materials are included under **Expansion Joint Filler and Joint Sealants** unless otherwise covered by specific bid item.

201-3.2 Premolded Joint Filler [Add the Following]:

Contractor shall use Preformed Expansion Joint Filler (Bituminous), conforming to ASTM D994.

201-3.4 Type "A" Sealant (Two-Part Polyurethane Sealant) [Replace with the Following]:

Type "A" Sealant shall not be used.

201-3.5 Type "B" Sealant (Preformed Elastomeric) [Replace with the Following]:

Type "B" Sealant must not be used.

201-3.7 Type "D" Sealant (Hot-Poured Rubber-Asphalt) [Replace with the Following]:

Type "D" Sealant must not be used.

201-3.8 Type "E" Sealant (Polysulfide Polymer and Rubber Rod) [Replace with the Following]:

Type "E" Sealant must not be used.

201-4 CONCRETE CURING MATERIALS

In addition to the materials outlined in **Section 201-4 of the Standard Specifications**, the following materials are included under **Concrete Curing Compound** unless otherwise covered by specific bid item.

201-4.1 Membrane Curing Compounds.

201-4.1.1 General [Replace Paragraph 4 with the Following]:

Type 2 must be used.

SECTION 203 – BITUMINOUS MATERIALS

203-6 ASPHALT CONCRETE

203-6.4 Asphalt Concrete Mixtures

203-6.4.1 Class and Grade [Add the following]:

Unless otherwise specified, the class and grade for all streets designated as collector streets or above, in accordance with the City of Fontana's Hierarchy of Streets Plan, shall be B-PG 70-10 and C PG 70-10 for the base and finish courses, respectively. All local roads shall be B PG 64-10 and C PG 64-10 for base and finish courses, respectively.

SECTION 207 – GRAVITY PIPE

207-8 VITRIFIED CLAY PIPE (VCP)

207-8.1 General [Replace with the following]:

Except as modified in this subsection, vitrified clay pipe and fittings including perforated pipe shall be extra strength manufactured in accordance with ASTM C700.

SECTION 214 – TRAFFIC STRIPING, CURB AND PAVEMENT MARKINGS, AND PAVEMENT MARKERS

[Replace with the following]:

All work shall be done in accordance with supplemental technical specifications Section “E”.

SECTION 217 – BEDDING AND BACKFILL MATERIALS

217-1 BEDDING MATERIAL

217-1.1 General [Replace with the following]:

Bedding Material for all pipe shall conform to City of Fontana Standard Plan No. 1008.

217-1.2 Bedding Material for Plastic Pipe [Delete]

217-2 TRENCH BACKFILL.

217-2.1 General [Replace the first paragraph with the following]:

Trench backfill material shall be native material generated from trench excavations or imported. Trench backfill material shall conform to the requirements shown in City of Fontana Standard Plan No. 1008 and the following.

217-2.2 Imported Trench Backfill [Replace the first paragraph with the following]:

Imported trench backfill shall be trench backfill material imported from outside the Work site. Imported trench backfill shall conform to the requirements shown in City of Fontana Standard Plan No. 1008 and the following.

217-3 STRUCTURE BACKFILL.

[Replace the first sentence with the following]:

Materials used for structure backfill shall conform to the requirements shown in City of Fontana Standard Plan No. 1008 and the Special Provisions.

PART 3 - CONSTRUCTION METHODS

SECTION 300 – EARTHWORK

300-1 CLEARING AND GRUBBING

300-1.2 Root Pruning and Tree Trimming [Replace with the following]:

Tree branches which hang within 13.5 feet (4.1m) above finished roadway grade or within 9 feet (2.7 m) above finished sidewalk or parkway grade shall be cut off to the boles in a workmanlike manner. The Contractor shall remove additional tree branches under the direction of the Engineer, in such a manner that the tree will present a balanced appearance. Scars resulting from the removal of branches shall be treated with a heavy coat of an approved tree sealant.

300-1.3 Measurement [Replace with the following]:

Clearing and Grubbing will be measured by the lump sum. Tree trimming and root pruning will not be measured separately for payment. Removal of trees and stumps will be measured by “each” regardless of size or diameter.

300-1.4 Payment [Replace with the following]:

Payment for clearing and grubbing shall be considered as included in the Lump Sum Bid Price paid for various items of work in accordance with the Schedule of Values, and no additional compensation will be allowed. The Lump Sum Bid price shall include payment for removal and disposal of the resulting materials off the Work site, and payment for root pruning and tree trimming.

300-2 UNCLASSIFIED EXCAVATION

300-2.1 General [Add the following]:

Unless separately designated, unclassified excavation shall include excavating, loading, stockpiling, hauling and disposing of surplus material to the depth indicated on the plans or as directed by the **Engineer**. Any remnants of structures, foundations, and fences within limits of construction shall be removed and disposed of in the legal manner and will be considered part of **Unclassified Excavation**. Removal of existing asphalt concrete pavement shall be included in this item of work unless covered by a specific bid item.

300-2.9 Payment [Replace with the following]:

Payment for Unclassified Excavation shall be deemed as included in the compensation paid for the related bid item and no additional compensation will be allowed.

300-3 STRUCTURE EXCAVATION AND BACKFILL

300-3.1 General [Add the following]:

Structure excavation and backfill shall be limited to the areas shown on the plans.

In making structure excavations for the project, the Contractor shall be fully responsible for designing, checking, providing and installing adequate sheeting, shoring, bracing, lagging, cribbing and piling as may be necessary as a precaution against slides, slippage or cave-in and to protect all existing and temporary improvements of any kind, either public or private property, fully from damage.

300-3.5 Structure Backfill

300-3.5.1 Requirements [Replace the second paragraph with the following]:

Structure backfill shall be placed in accordance with 300-4.5 and shall be mechanically compacted to a minimum relative compaction of 95 percent.

300-4 UNCLASSIFIED FILL

300-4.7 Compaction [Replace with the first sentence with the following]:

Unless otherwise specified, each layer of unclassified fill shall be compacted to a relative compaction of at least 95 percent.

300-4.10 Payment [Replace with the first sentence with the following]:

Payment for unclassified fill shall be included in the lump sum Bid price for Clear and Grubbing.

SECTION 301 - SUBGRADE PREPARATION, TREATED MATERIALS, AND PLACEMENT OF BASE MATERIALS

301-1 SUBGRADE PREPARATION

301-1.2 Preparation of Sub grade [Replace with the following]:

Sub-grade preparation for areas of new pavement is required and shall include scarification, moisture conditioning, and compaction of the upper approximately twelve (12) inches of sub-grade. If areas of soft, saturated, or otherwise unsuitable materials are encountered, they should be removed to competent underlying material, as evaluated in the field by the geotechnical consultant, and replaced with compacted fill. No material greater than three (3) inch in any dimension shall be used in the top twelve (12) inches of the sub grade. No nesting of rocks shall be allowed.

301-1.3 Relative Compaction [Replace with the following]:

Relative compaction of finished sub-grade under paved areas and concrete curb, curb and gutter, gutters, and concrete spandrels shall be modified to require **95% minimum relative compaction of the top twelve (12) inches of the sub-grade**. All material removed and replaced for remedial grading, trenching, or disturbed by tree removal shall be

compacted at 95% minimum relative compaction, even where it extends beyond twelve (12) inches below finished sub-grade. Relative compaction of all other areas outside of curb, curb and gutters, concrete spandrels, gutters and paved areas shall require 90% minimum compaction.

301-1.6 Soil Sterilant [Replace with the following]:

301-1.6.1 General

All areas to receive Asphalt Concrete Pavement shall be prepared in accordance with applicable sections of the Standard Specifications concerning sub grade preparation. In addition, after the compaction is completed, the Contractor shall apply a non-migrating soil sterilant to the sub grade. Application shall be by spray equipment which provides good mechanical agitation and even coverage of the area to be treated. Spray equipment shall be calibrated before material is applied and the City Inspector's decision as to the effectiveness of the spray equipment shall be final. Great care shall be taken to apply soil sterilant to the designated areas only. Aggregate base may be placed immediately after placement of soil sterilant.

301-1.6.2 Operator's License

The Contractor's operator applying the soil sterilant shall be licensed by the State of California, Department of Food and Agricultural Affairs and registered with the Office of the Agricultural Commissioner of San Bernardino County as pest control officer.

301-1.6.3 Application

Any soil sterilant, which is approved in writing by a licensed pest control advisor (for the purpose of which it will apply) may be used upon acceptance by the Engineer. The dye shall not stain concrete or masonry. Certification shall be furnished to the Engineer showing the purchase receipt and manufacturer's recommended rate of application of the material.

301-1.7 Payment [Replace the first paragraph with the following]:

Payment for sub grade preparation shall be included in the unit price bid for respective bid item and shall include, hauling, exporting, screening, spreading and compacting and no additional compensation will be allowed.

301-2 UNTREATED BASE

301-2.4 Measurement and Payment [Add the following]:

The Contractor is required to provide the City with load count tickets indicating the amount of crushed miscellaneous base delivered to the jobsite. In addition, the City requires the Contractor to provide documentation of all asphalt concrete or portland cement concrete removed from the project that has been taken to a recycling plant to be used as crushed miscellaneous base. Contractor is required to complete the recycling forms in the appendices of the bid documents and submit prior to release of any progress payments.

SECTION 302 - ROADWAY SURFACING

302-4 SLURRY SEAL SURFACING

302-4.1 General [Replace the second sentence with the following]:

The combined aggregate gradation (Type) shall be as determined by the Engineer. The slurry seal mixture shall be EAS.

302-4.8 Scheduling, Public Convenience and Traffic Control [Replace the first two paragraphs with the following]:

In addition to Part 3 and Part 6, the Contractor shall comply with the following:

The Contractor shall, at least 48 hours in advance, post "No Parking" signs within the project limits. Said signs shall be provided by the Contractor and approved by the City Engineer prior to posting. The Contractor shall be responsible for maintaining notification signage in a serviceable manner. Signs shall indicate the date and hours of restriction.

The Contractor shall be responsible for adequate barricading of the work area and controlling of traffic in the vicinity of the project.

302-4.9 Spreading and Application.

302-4.9.1 General [Add the following]:

At least 7 days prior to cleaning, the Contractor shall remove all weeds from the existing roadway that may be objectional to the application of slurry as determined by the Engineer. All areas to be sealed with slurry seal, that contain weeds or plant growth of any kind, shall be treated with herbicides. Areas include, but are not limited to cracks, joint lines, edge lines and match lines. Herbicides shall be used with strict adherence to manufacturer's specifications and instructions, as well as any applicable governing rules.

Prior to cleaning, the Contractor shall remove all existing striping within the project limits, as approved by the Engineer, in accordance with Section-E of these Special Provisions.

Prior to the application of slurry seal, the Contractor shall route and crackfill all existing cracks. Crack treatment shall be in accordance with Caltrans Standard Specifications Section 37-5 Crack Treatment. Crack treatment shall be a hot-applied crack treatment. Payment for Crack Treatment shall be included in the Contract Unit Price for Slurry Seal Resurfacing.

All preparatory work shall be inspected by the Engineer at least 24 hours prior to the application of slurry. The Contractor shall be present for the field inspection of all preparatory work.

Slurry Seal Resurfacing shall be free of the following:

- More than 4 marks in the completed slurry seal that are up to 1 inch wide and up to 6 inches long per 1000 square feet of slurry seal place.
- Marks in the completed slurry seal surface that are over 1 inch wide or 5 inches long
- Excessive raveling consisting of the separation of the aggregate from the asphaltic emulsion.
- Bleeding consisting of the occurrence of a film of asphaltic material on the surface of the slurry seal.
- Delaminating of the slurry seal from the existing pavement.
- Rutting or wash-boarding

The Contractor will be required to work around all existing utility facilities and seal up to said facilities. During sealing operations, the Contractor shall cooperate with the owners of any utility covers and shall cover and completely protect said covers with heavy plastic or other suitable material.

Pneumatic rollers shall be used as soon as the asphalt slurry has set sufficiently to prevent any material being picked up. It shall be rolled by two to five complete coverages as directed. Rolling shall continue until all ridges have been ironed out and a uniform smooth surface is obtained. Pneumatic rollers shall be operated at a tire pressure of 50 pounds psi.

302-4.11 Measurement

302-4.11.1 General [Replace with the following]:

The Contractor shall submit a written plan covering the intended method of delivery, storage and measurement of materials.

Upon completion of the Work, the Contractor shall submit licensed weighmaster's certificates for materials delivered to the Work site. Measurement for payment for all Slurry Seal Resurfacing, including slurry seal used to cover the removal of existing pavement markings, shall be measured and paid for by the square foot.

302-4.11.2 Emulsion-Aggregate Slurry Seal Surfacing [Delete this section]

302-4.11.3 Rubberized Emulsion-Aggregate Slurry Seal Surfacing [Delete this section]

302-4.12 Payment

302-4.12.2 Emulsion-Aggregate Slurry Seal Surfacing [Replace with the following]:

Payment for emulsion-aggregate slurry seal surfacing will be made at the Contract Unit Price per square foot for each combination of EAS and aggregate Type used in the Work.

No separate or additional payment will be made for calibration, scheduling, public convenience, or traffic control unless otherwise specified.

302-4.12.3 Rubberized Emulsion-Aggregate Slurry Seal Surfacing [Replace with the following]:

Payment for rubberized emulsion-aggregate slurry seal surfacing will be made at the Contract Unit Price per square foot for each combination of REAS and aggregate Type used in the Work.

No separate or additional payment will be made for calibration, scheduling, public convenience, or traffic control unless otherwise specified.

302-4.13 Post-Application Sweeping [Add this section]:

After the application of slurry seal, the Contractor shall power sweep or vacuum the newly slurred surface three different times prior to completing the work. The first time is immediately after the slurry seal has cured. The second time shall be two weeks after the first sweeping. The third time shall be two weeks after the second sweeping. The surface shall be carefully cleaned with a power sweeper or vacuum, subject to approval of the Engineer. Cleaning shall occur from curb to curb including gutters, sidewalks and driveway approaches. Sweeping shall remove all foreign materials and excess slurry seal.

Post-Application Sweeping shall be included in Contract Unit Price for each type of Slurry Seal.

302-5 ASPHALT CONCRETE PAVEMENT

302-5.2 Materials

302-5.2.3 Tack Coat [Add the following]:

The Engineer will determine if the pavement is sufficiently dry for the application of the tack coat. Tack coat shall not be applied when the temperature of the surface to be tacked is below 50° F in the shade, or as determined by the Engineer. Tack coat shall be trackless.

Tack coat shall not be left exposed overnight. Immediately in advance of placing the overlay, additional tack coat shall be applied as directed by the Engineer, to areas where the tack coat has been destroyed or otherwise rendered ineffective.

The area to which tack coat has been applied shall be closed to public traffic. Care shall be taken to avoid tracking tack material onto existing pavement surfaces beyond the limits of construction. Existing striping and pavement markings which have been tacked with

tack coat shall be repainted at the Contractor's expense. Certain driveways which are heavily used during hours of construction as determined by the Engineer, shall remain open as long as possible, and tack shall be applied to areas along said driveways as soon as possible before the asphalt is placed, or the Contractor may provide some means of protecting the tack coat while traffic passes over it. The means of protection shall be utilized only after approval by the Engineer.

The Contractor shall clean existing concrete and asphalt surfaces of any tack coat tracked onto them, to the satisfaction of the Engineer.

Existing cracks which are exposed after cold-milling, and which the cracks are hairline to 1/8" in width, shall be air-blown with compressed air, and cleaned to expose the A.C. with the appearance of clean edges. Cracks greater than 1/8" in width shall be routed to remove all loose A.C. particles and to leave a cracked edge line that is sound and integral with no secondary fractures emanating from the crack line. Areas that are badly fractured shall be brought to the attention of the City's representative prior to routing. These cracks, which are greater than 1/8" in width, shall then be air-blown with compressed air to the same extent as hereinbefore specified.

302-5.9 Placement

302-5.9.1 General [Replace Second Paragraph with the following]:

Asphalt concrete of the classes shown in Table 302-5.9.1(A) or Table 302-5.9.1(B) shall be placed in courses not exceeding 4" (100 mm) in compacted thickness for base courses and no more than 2" (50 mm) in compacted thickness for finish courses.

Asphalt concrete pavement for resurfacing shall be at least **four (4) inches thick**, regardless of the thickness of the pavement removed and shall be placed in two (2) or more courses. The finish course shall be a minimum one (1) inch thick.

Placement of the finish course shall not be completed until completion of all underground construction unless waived by the Engineer.

Contractor shall suspend all paving operations when the Engineer determines the weather conditions are not suitable for paving. The contractor will not be entitled to additional compensation if paving operations are suspended due to weather conditions.

302-5.9.2 Joints [Replace with the following]:

Longitudinal joints shall be located six inches off centerline of striped lane line. Joints between successive runs shall be vertical and at right angles to the line of the improvement. Care shall be exercised in connection with the construction of all joints to ensure that the surface of the pavement is true to grade and cross section. Lapped joints will not be permitted.

When terminating paving operations for the day, the Contractor shall construct temporary hot-mix ramps at all vertical joints open to through traffic. Temporary hot-mix ramp dimensions and compaction shall be approved by the Engineer. Prior to resuming

paving operations, the Contractor shall remove temporary hot-mix ramps to provide for a vertical face and a full depth lift joint and apply a tack coat to the faces of the joint in accordance with 302-5.8.

At those locations where new asphalt concrete pavement overlay joins existing asphalt pavement, the Contractor shall rake out all aggregate three-eighths (3/8) inch or larger and feather the new paving to form a smooth transition to join the existing pavement. Pavement transitions shall be in conformance with Section 601-1.

302-5.11 Compaction

302-5.11.1 General [Replace the first paragraph with the following]:

Asphalt concrete, after the completion of rolling, shall be compacted to a minimum of 95 percent of the theoretical maximum density (TMD) as determined in accordance with AASHTO T 209.

302-5.13 Measurement

302-5.13.3 Prime Coat [Replace with the following]:

Placement of prime coat shall be included in the measurement for installing asphalt concrete pavement.

302-5.13.4 Tack Coat [Replace with the following]:

Placement of tack coat shall be included in the measurement for installing asphalt concrete pavement.

302-5.13.5 Asphalt Concrete [Replace with the following]:

Asphalt concrete will be measured by the square feet for each thickness shown on the Plans or by the tons of material used in the Work, as shown in Bid.

302-5.14 Payment

302-5.14.2 Headers [Replace with the following]:

302-5.14.3 Prime Coat [Replace with the following]:

Placement of prime coat shall be included in the payment for placement of asphalt concrete pavement.

302-5.14.4 Tack Coat [Replace with the following]:

Placement of tack coat shall be included in the payment for placement of asphalt concrete pavement.

302-5.14.5 Asphalt Concrete [Add the following]:

Payment for placement of asphalt concrete shall constitute full compensation for the preparation of subgrade and applying tack coat if required.

Payment will only be made for resurfacing of areas of pavement removal as shown on the plans, or otherwise directed by the Engineer. Resurfacing of areas removed outside of these limits, or in excess of the specified depth, will be performed at the Contractor's expense.

Payment for temporary resurfacing shall be included in the lump sum Bid item for Temporary Traffic Control, per section 601-1.

SECTION 303 - CONCRETE AND MASONRY CONSTRUCTION

303-1 CONCRETE STRUCTURES

303-1.1 General [Add the following]:

The surfaces of all concrete inlet structures shall receive an ordinary surface finish. "NO DUMPING FLOWS TO CREEK" stencil shall be applied to all catch basin decks per City of Fontana Standard Plan No. 6002.

303-1.3 Forms [Add the following]:

Formed wall surface shall be free of any unevenness greater than one-quarter (1/4) inch when checked with a ten (10) foot straight edge.

Concrete in walls with side slopes flatter than 3/4:1 shall be placed on suitable material which has been overfilled, compacted and trimmed to true grade. Backforms shall be used where the side slope is 3/4:1 or steeper.

Contractor shall be responsible for the design, engineering, construction and safety of removable form work.

Contractor shall design removable forms for the loads and lateral pressures outlined in the American Concrete Institute Standard "Recommended Practice for Concrete Formwork" (ACI 347-78).

303-1.7 Placing Reinforcement

303-1.7.1 General [Add the following]:

Aluminum and plastic supports for reinforcement shall not be used.

303-1.9 Surface Finishes

303-1.9.2 Ordinary Surface Finish [Add the following]:

Ordinary Surface Finish shall not apply to rock pockets, which in the opinion of the Engineer, are of such extent or character as to affect the strength of the structure materially or to endanger the life of the steel reinforcement. In such cases, the Engineer may declare the concrete defective and require the removal and replacement of the structure affected.

303-1.12 Payment [Replace with the following]:

Concrete structures will be paid for as shown in the proposal bid sheet for each item and shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work required to construct the respective structure in conformity with the plans and specifications.

Payment for concrete manhole structures, junction structures, catch basins, collars, and bulkheads shall be made at the contract unit price bid for each respective type of structure as bid and shall include full compensation for furnishing all materials, labor, tools and equipment, and doing all work required to provide each respective item of work complete in place as shown on the plans or specified herein including, but not limited to, removal of existing improvements and no additional compensation will be allowed.

Payment for concrete catch basins shall include compensation for the local depression as shown on the plans and for Stenciling of decks per City Standard 6002. In areas of existing pavement, catch basins shall be constructed by saw cutting and removing the existing pavement one (1) foot from the edge of the local depression. Following construction of the basin and local depression, the void shall be patched with a minimum six (6) inches thick full depth asphalt concrete pavement or existing pavement thickness plus one (1) inch in accordance with Section 302-5 of these Specifications.

Payment for adjustment of concrete manholes or junction structures to grade shall be included in the compensation paid for the respective structure. Removal of existing structures shall be paid for at the contract unit price per each regardless of size and no additional compensation will be allowed.

Payment for concrete structures will be made as specified in the Special Provisions or as shown in the Bid.

Unless otherwise specified, no separate or additional payment will be made for dewatering or radiographic examinations.

Payment for grouting seams in rock or otherwise treating will be considered as included in the item of work for which the grouting seams in rock or otherwise treating is necessitated.

Payment for cement used in mortar for covering construction joints, patching, or other uses in the structure being constructed, in excess of that required for the design mix of the adjacent concrete, shall be included in payment for the item of work of which said mortar is a part.

Payment for steel for laps indicated on the Plans, or required by the Engineer shall be included in the payment for the item of work in which steel for laps is a part. No payment will be made for reinforcing steel in laps (whether specified or optional) which are not used, and payment will not be made for additional steel in laps which are requested by the Contractor for its convenience, or for steel used in chairs or other devices for supporting the required reinforcement.

No separate payment will be made for longitudinal steel reinforcement will be made, whether optional or not.

Payment for cast-in-place reinforced concrete box will be made in accordance with 306-15.

303-2 AIR PLACED CONCRETE

303-2.1 Requirements

303-2.1.1 General [Add the following]:

Rock slope protection shall conform to the provisions in CALTRANS Standard Specification, Section 72, "Slope Protection" and these special provisions.

303-2.11 Measurement and Payment [Add the following]:

The Contract Unit Price for slope protection shall include full compensation for preparing the foundation, setting all formwork and grounds, furnishing and placing reinforcement, placing the concrete, finishing surfaces, curing, and structure backfill as shown on the Plans or in the Special Provisions.

303-5 CONCRETE CURBS, WALKS, GUTTERS, CROSS GUTTERS, ALLEY INTERSECTIONS, ACCESS RAMPS, AND DRIVEWAYS

[Add the following]:

The applicable provisions of **Section 303-5** shall apply to concrete paving for Bus Bays and placement of drainage inlet aprons.

303-5.1 Requirements

303-5.1.1 General [Replace paragraph two with the following]:

Unless otherwise shown on the Plans, and except as otherwise specified in 303-5.1.3, the minimum thickness of walks shall be 4 inches. The thickness of gutters, cross gutters, alley intersections, access ramps, and driveway aprons shall be as shown on the Plans.

303-5.1.3 Driveway Entrances [Replace paragraph 3 with the following]:

Where a walk is to be constructed across any and all driveways, the thickness thereof shall be 6 inches (150 mm) unless otherwise specified or shown on the Plans. Where a walk is to be constructed directly behind and across driveways, the thickness thereof shall be 6 inches.

303-5.5 Finishing

303-5.5.2 Curb [Replace paragraph 2 with the following]:

The face and top of the curb shall then be carefully troweled to a smooth and even finish; the top being finished to a transverse slope of 1/4 inch (6 mm) toward the gutter, with both edges rounded to a radius of 1/2 inch (12.5 mm). The troweled surface shall be finished with a fine-hair broom applied parallel with the line of the work. The edge of the concrete at all expansion joints shall be rounded to a 1/4 inch (6 mm) radius.

303-5.9 Measurement and Payment [Add the following]:

Concrete curbs, walks, gutters, cross gutters, alley intersections, access ramps, and driveways will be paid for as shown in the proposal bid sheet for related items of work and shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work required to construct the respective structure in conformity with the plans and specifications.

The fully depressed curb, along with the curb of the radii for curb access return ramps and within the limits of driveway entrances, shall be measured and paid for under the bid item for curb and gutter.

The sidewalk directly behind driveways shall be measured and paid for under the bid item for driveway approach.

Measurement of the curb access return ramp shall be considered the sloped areas between, and including, the 12" grooving as shown in Grooving Detail per the City of Fontana Standard Plan No. 1003. Unless a separate bid item is provided, payment for furnishing and installing the detectable warning surface shall be included in the Contract Unit Price for the construction of the curb access return ramps. All detectable warning surfaces, or truncated domes, shall be in accordance with per City of Fontana Standard Plan No. 1003.

SECTION 306 - OPEN TRENCH CONDUIT CONSTRUCTION

306-3 TRENCH EXCAVATION

306-3.2 Removal of Surface Improvements [Replace with the following]:

Removal of surface improvements shall conform to Section 300-1.3 and 401.

306-3.3 Removal and Abandonment of Existing Conduits and Structures. [Add the following after paragraph 4]:

The above shall apply to all utilities and underground conduits.

306-5 DEWATERING

[Replace with the following]:

The Contractor shall install, operate, and maintain a dewatering system of sufficient capacity so as to maintain the trench bedding zone free of standing or ponded water, and in a condition suitable for prosecution and progress of the Work. Unless otherwise specified, dewatering shall conform to 3-12.6.8.

Groundwater shall be allowed to rise to ambient groundwater elevation upon completion of final trench backfill operations to finished grade or subgrade of permanent surfacing. The rate at which groundwater is allowed to rise shall be controlled by the Contractor to assure protection of the Work in conformance with 4-2.

306-7 PREFABRICATED GRAVITY PIPE

306-7.8 Gravity Pipeline Testing

306-7.8.2.1 General [Add the Following]:

All storm drains, storm drain laterals, sewer lines, and sewer laterals shall be video inspected at Contractor's expense. Payment for all videos shall be included in the various bid items pertaining to the work and no additional compensation will be allowed. Video inspection shall be performed prior to and after all backfill and compaction operations are completed within project limits. Contractor performing the video inspection must have a NASSCO PACP, LACP, and MACP certification.

All sewers shall be video inspected by the Contractor. Sewer video shall include clean-out connection, clean-out to lateral segment, lateral, and main line. Contractor shall provide an electronic copy of the video to inspection staff with an accompanying full report. Videos to be inspected and approved by City Inspector. If removal and replacement of any utility is required, a subsequent video of the repair will be required.

All storm drains shall be video inspected by the Contractor. Storm drain video shall include main lines and laterals. Contractor shall provide an electronic copy of the video to inspection staff with an accompanying full report. Videos to be inspected and approved by City Inspection. If removal and replacement of any utility is required, a subsequent video of the repair will be required.

306-12 BACKFILL

306-12.1 General [Add the following]:

Trenches shall be backfilled within 5 days of the installation and acceptance of the pipe or reinforced box.

306-12.3 Mechanically Compacted Trench Backfill

306-12.3.2 Compaction Requirements [Replace with the following]:

All trench backfill and bedding shall be densified to 90% minimum relative compaction. Relative compaction of top twelve (12) inches of subgrade shall be as required per Section 301-1 of these specifications.

306-12.4 Jetted Trench Backfill

306-12.4.1 General [Add the following]:

Jetting will not be permitted unless specifically approved in advance by the Engineer.

306-13 TRENCH RESURFACING

306-13.1 Temporary Resurfacing [Replace the first paragraph with the following]:

Unless permanent pavement is placed immediately, temporary resurfacing shall be at least 4 inches thick and shall be placed and maintained wherever excavation is made through pavement or driveways. All other areas shall be at least 2 inches thick.

Temporary Resurfacing shall be placed as soon as the condition of the backfill is suitable, as determined by the Engineer, and shall remain in place until permanent resurfacing. Temporary resurfacing shall be flush with adjacent pavement.

306-13.2 Permanent Resurfacing [Replace the first paragraph with the following]:

Unless otherwise specified, surface improvements damaged or removed as a result of the Contractor's operations shall be reconstructed by the Contractor to the same dimensions, except for the pavement thickness, and with the same type of materials. Trench and excavation resurfacing shall be 1 inch (25 mm) greater in thickness than existing pavement, or 4 inches thick, whichever is greater. Trench edges shall be removed by saw cutting full-depth and shall be removed to clean, straight lines.

306-13.4 Base Course for Asphalt Concrete Pavement [Replace with the first paragraph with the following]:

The base course shall be a B gradation and shall be placed by either a spreader box, paving machine or "shoe" attachment.

306-13.5 Finish Course for Asphalt Concrete Pavement [Replace with the first sentence of the first paragraph with the following]:

The finish course shall be a C2 gradation.

306-14 MEASUREMENT

306-14.5 Precast Reinforced Concrete Manholes (PRCMH) [Replace with the following]:

Precast Reinforced Concrete Manholes (PRCMH) will be paid for as shown in the proposal bid sheet for each item and shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work required to construct the respective structure in conformity with the plans and specifications.

Payment for adjustment of concrete manholes to grade shall be included in the compensation paid for the respective structure.

Unless otherwise specified, no separate or additional payment will be made for dewatering or radiographic examinations.

Payment for cement used in mortar for covering construction joints, patching, or other uses in the structure being constructed, in excess of that required for the design mix of the adjacent concrete, shall be included in payment for the item of work of which said mortar is a part.

306-14.8 Temporary Resurfacing [Replace with the following]:

Temporary resurfacing will not be measured separately for payment.

306-14.9 Permanent Resurfacing [Replace with the following]:

Permanent resurfacing will be measured as specified in section 302-5.9.

306-15 PAYMENT

306-15.1 General [Replace with the following]:

Payment for pipe and conduit will be made at the Contract Unit Price per linear foot (m). The Contract Unit Price shall include payment for;

- a) all wyes, tees, bends, monolithic catch basin connections, and specials shown on the Plans;
- b) removal of interfering portions of existing pipelines, sewers, storm drains, and improvements;
- c) closing or removing of abandoned conduit and structures;
- d) trench excavation;
- e) control of surface waters;
- f) preparation of subgrade;
- g) placing and joining pipe;
- h) erection and removal of forms;
- i) reinforcing steel;
- j) pressure testing;
- k) video inspection;

- l) disinfection sample collection and delivery;
- m) backfilling the trench;
- n) temporary resurfacing;
- o) all other work (excluding permanent resurfacing) necessary to install the pipe or conduit, complete in-place;
- p) providing and installing said bedding material.

No separate or additional payment will be made for additional bedding, or a higher strength of pipe necessitated by the Contractor exceeding the maximum trench width.

306-15.2 Shoring and Bracing [Add the following]:

Payment for shoring and bracing shall be in accordance with Section 5-7.2.3

306-15.9 Temporary Resurfacing [Replace with the following]:

Payment for temporary resurfacing shall be included in the lump sum Bid price for Temporary Traffic Control and shall include furnishing, placing, maintaining, removing, and disposing of such temporary resurfacing materials.

SECTION 309 – MONUMENTS

309-2 MATERIALS

[Replace the second paragraph with the following]:

Marker plates for survey monuments will not be furnished by the Agency.

309-4 PAYMENT

[Replace with the following]:

Payment for survey monument and all work involved in constructing the survey monument, including necessary excavation and backfill, shall be considered included in various bid items and no additional compensation will be allowed.

SECTION 314 – TRAFFIC STRIPING, CURB AND PAVEMENT MARKINGS, AND PAVEMENT MARKERS

[Replace with the following]:

Traffic striping, curb and pavement markings, and pavement markers shall be in accordance with Section E of these Special Provisions.

PART 4 – EXISTING IMPROVEMENTS

SECTION 400 – PROTECTION AND RESTORATION

400-1 GENERAL

[Replace with the following]:

The Contractor shall be responsible for the protection of public and private property adjacent to the Work and shall exercise due caution to avoid damage to such property.

The Contractor shall repair or replace all existing improvements which 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 its operations. When a portion of a sprinkler system must be removed, the remaining lines shall remain functional. Repairs and replacements shall be at least equal to existing improvements and shall match them in finish and dimension.

Maintenance of street and traffic signal systems that are damaged, temporarily removed or relocated shall conform to Section E.

Trees, lawns, 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 as nearly the original condition and location as is reasonably possible. Lawns shall be repaired by installing sod of similar variety as that which was removed. Installation shall be in accordance with the grower/supplier's instructions

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 which are designated for removal and would be destroyed because of the Work.

Contractor shall prevent tracking tack coat, asphalt concrete emulsions, etc. onto existing concrete such as driveways, cross gutters, spandrels, and other adjacent improvements by sanding or other methods approved by the Engineer. Any material tracked onto existing improvements shall be removed to the satisfaction of the Engineer and the Owner of the improvements, at the Contractor's expense.

SECTION 401 –REMOVAL

401-2 ASPHALT CONCRETE PAVEMENT

[Add the following]:

The City will require the Contractor to provide documentation of all asphalt paving removed from the project that has been taken to a recycling plant for later use in asphalt concrete or pulverized at the jobsite and re-used as base or sub-base material.

401-3 CONCRETE AND MASONRY IMPROVEMENTS

401-3.2 Concrete Curb, Walk, Gutters, Cross Gutters, Curb Ramps, Driveway, and Alley Intersections [Add the following]:

Concrete shall be removed to neatly sawed edges with saw cuts made through the entire thickness. Concrete sidewalk or driveway to be removed shall be neatly sawed in straight lines either parallel to the curb or at right angles to the alignment of the sidewalk. Removals and replacements shall be joint to joint, or as determined by the Engineer. Curb and gutter shall be sawed on a neat line at right angles to the curb face.

401-6 MEASUREMENT

[Add the following]:

Removal of existing improvements will be measured as shown in the Bid.

If no separate Bid item is provided in the Contract for this work, then this item will not be measured separately for payment.

401-7 PAYMENT

[Add the following]:

Payment for removal of existing improvements will be measured as shown in the Bid.

If no Bid item is provided in the Contract for this work, full compensation for such work shall be considered as included in the prices bid for Clearing and Grubbing.

SECTION 402 – UTILITIES

402-1 LOCATION

402-1.1 General. [Replace the third paragraph with the following]:

Before starting the Work, the Contractor shall physically locate subsurface installations within 24 inches of any side of excavations or utilities to be crossed as required for the Work. The Contractor shall determine the horizontal and vertical location, alignment, depth, material type, and size of each subsurface installation. Excavation shall be performed pursuant to California Government Code Section 4216.4. The Contractor shall provide the subsurface installation location data to the Engineer within seven Days.

The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below, may or may not be a complete list of utility companies and it shall be the Contractor's responsibility for proper notification of all utility companies that may be within their work zone area. The City does not guarantee the correctness of any information provided with regards to contact person and contact numbers.

- Charter Communication- (formerly TWC)
Valerie Patao (909) 239-4790
1500 Auto Center Drive
Ontario, CA 91761
- AT & T
Robert Sturtevant (951) 359-2263
3073 Adams Street, 2nd Floor
Riverside, CA 92807
- AT & T California
Char Hinzo (858) 886-1288
Substructure Org/Riv/SB
7337 Trade St, Rm. 5685
San Diego, CA 92121
- Cal Trans – District 8 – (Permits)
Local Telephone: (909) 383-4526
Public Affairs
464 W. 4th Street
San Bernardino, CA 92401
- Cucamonga County Water District
Russel Silva (909) 987-2591
10440 Ashford St.
Rancho Cucamonga, CA 91730
- Fontana – Development Services Organization
(Sewers, Storm Drain and Landscaping)
Engineering/Construction (909) 350-7610
Public Works (Maint. Yard) (909) 350-6760
Traffic Signal (Traffic Sect.) (909) 350-6525
- Fontana Water Company
Jim Chapman (Field) (909) 822-9190
15966 Arrow Route
Fontana, CA 92335
- Inland Empire Utilities Agency (IEUA)
Lisa Munoz (Civil Engineer) (909) 993-1522
6075 Kimball Avenue
Chino, CA 91708
- Kinder-Morgan (formerly Santa Fe Pacific Pipeline)
Philip Vasquez (714) 560-4641
2000 East Sepulveda Blvd
Carson CA 90810

- Kinder-Morgan (formerly Santa Fe Pacific Pipeline)
Don Quinn (714) 560-4940
1100 Town & Country Road
Orange, CA 92868
- Marygold Mutual Water
Justin Brokaw (909) 877-0516
9725 Alder Avenue
Bloomington, CA 92316
- Metropolitan Water District of Southern California
Kieran Callahan (213) 217-6000
P.O. Box 54153
Los Angeles, CA 90054
- San Bernardino County Fire District
Chief Jeff Birchfield (909) 829-4441
15380 San Bernardino Ave
Fontana, CA 92334
- San Bernardino County Flood Control District
Ken Eke, M.S.C.E., P.E. (909) 387-7910
Larry Brock (909) 387-7910
825 East Third Street
San Bernardino, CA 92415
- Southern California Edison
Douglas Pendleton: (909) 357-6168
7951 Redwood Ave.
Fontana, CA 92336
- Southern California Edison
Map Requests
1444 E McFadden Ave "Bldg D"
Santa Ana CA 92705
- Southern California Gas Company
Geary Ambers (909) 335-7955
1981 W. Lugonia Ave
Redlands, CA 92374
- Union Pacific Railroad (402) 544-5000
1400 Douglas Street
Omaha, NE 68179
- Sprint Communications Company
Lynn Durrett (909) 873-8022

282 S. Sycamore Ave.
Rialto, CA 92376

- Frontier Communications
Desiree Serrano (909) 748-6640
9 S. 4th Street
Redlands, CA 92373
- West Valley Water District (909) 875-1804
Roger Pound
855 W. Base Line Road
Rialto, CA 92376
- Zayo Group (866) 364-6033
Attn: Network Control Center
1821 30th Street, Unit A
Boulder, CO 80301
- Century Link (918) 547-0007
Caleb King
100 South Cincinnati Ave, Suite 1200
Tulsa, OK 74103
centurylinknationalosprelocations@centurylink.com
- Crawford Canyon Water (909) 356-1815
Dennis Allard
6106 Cherry Avenue
Fontana, CA 92336
- USA Member Utility, Phone (913) 451-5641
9200 Indian Creek Parkway Suite 201
Overland Park, KS 66210

The Contractor shall notify separately, City of Fontana Public Services Division at (909) 350-6760 and Traffic Division at (909) 350-6777 for location of utility lines, landscape irrigation lines, traffic signals and communication conduits.

[Add the following to the fifth paragraph]:

Removals for utility locations shall be in accordance with Section 401.

402-1.2 Payment [Replace with the following]:

Payment for utility location by the Contractor shall be included in various bid items and no additional compensation will be allowed. Payment shall include, but is not limited to, excavation, backfill, placement of temporary resurfacing, permanent resurfacing and furnishing subsurface installation location data.

402-2 PROTECTION

[Add the following to the third paragraph]:

Utilities located within 24 inches of the location plotted on the plan shall not be considered as shown incorrectly.

The California Public Utility Commission mandates that, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the Southern California Gas Company's Headquarters Planning Office at (909) 793-2725 at least two (2) working days prior to the start of construction.

To the extent required by Government Code Section 4215, the Owner shall compensate Contractor for the costs of locating and repairing damage to utility facilities not due to the failure of Contractor to exercise reasonable care, and for removing or relocating main or trunk line facilities not indicated in the plans with reasonable accuracy, and for equipment necessary idled during such work. Contractor shall not be assessed liquidated damages for delay caused by failure of Owner to provide for removal or relocation of such utility facilities.

402-4 RELOCATION

[Replace with the following]:

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 403-1. 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 7-3 or 7-4.

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.

The utility owner will relocate service connections as necessary within the limits of the Work. When shown on the Plans, or as directed by the Engineer, the 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 or reconnection of such service connections shall be included in the various Bid items. 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.

Contractor shall be responsible for adjusting gas and water valve covers during the paving operation to finished grade and the cost shall be deemed to be included as part of the paving cost.

The Contractor shall be aware of work to be performed by or on behalf of Southern California Edison related to existing facilities and proposed new services.

402-6 COOPERATION

[Add the following]:

The Contractor is responsible for all utility service charges related to the work during the course of construction and construction maintenance periods until the project has been accepted by the City. Payment for the utility service charges shall be considered as included in the prices paid for various items of work and no additional compensation will be made therefore.

The contractor is responsible for coordination with utility service providers to provide the service connections shown in the project plans.

Electrical Service – Upon award of contract, the Contractor shall contact the Southern California Edison (SCE) service planner and obtain approved drawings prior to installation of the service conduit, ducts, pad mount, risers, pull boxes, protective coverings, etc. shown in the plans. All work indicated in the SCE drawings, whether shown in the project plans or not, shall be provided and installed by the Contractor in compliance with SCE, City of Fontana, and California Building Code requirements. The SCE engineering and permit fees associated with providing electrical service shall be paid by the Contractor and reimbursed by the owner. The Contractor shall notify the owner of any discrepancies between the SCE drawings and the project plans prior to proceeding with the work.

Telephone Service – Prior to submitting a bid, the Contractor shall contact the telephone service provider to receive complete information of the requirements and include all service costs associated with providing telephone service and include this within the amount bid. The act of submitting the bid shall constitute the full responsibility of the Contractor to install the telephone service in compliance with the serving utility and to pay all charges levies by the serving utility. All telephone work shall be in compliance with the project plans and the requirements of the serving utility.

Cable TV Service - Upon award of contract, the Contractor shall contact the Spectrum service planner and obtain approved drawings prior to installation of the service conduit, ducts, pad mount, risers, pull boxes, protective coverings, etc. shown in the plans. All work indicated in the Spectrum drawings, whether shown in the project plans or not, shall be provided and installed by the

Contractor in compliance with Spectrum, City of Fontana, and California Building Code requirements. The Spectrum engineering and permit fees associated with providing cable television service shall be paid by the Contractor and reimbursed by the owner. The Contractor shall notify the owner of any discrepancies between the Spectrum drawings and the project plans prior to proceeding with the work.

Fiber Optic Service - Upon award of contract, the Contractor shall contact the city's fiber service planner and obtain approved drawings prior to installation of the service conduit, ducts, pad mount, risers, pull boxes, protective coverings, etc. shown in the plans. All work indicated in the fiber drawings, whether shown in the project plans or not, shall be provided and installed by the Contractor in compliance with City of Fontana and California Building Code requirements. The fiber engineering and permit fees associated with providing fiber service shall be paid by the Contractor and reimbursed by the owner. The Contractor shall notify the owner of any discrepancies between the fiber drawings and the project plans prior to proceeding with the work.

Natural Gas Service - Upon award of contract, the Contractor shall contact the Gas Company and obtain approved drawings prior to installation of the service line and meter shown in the plans. All work indicated in the Gas Company drawings, whether shown in the project plans or not, including trenching, shall be provided and installed by the Contractor in compliance with City of Fontana, Gas Company, and California Building Code requirements. Any fees associated with establishing gas service shall be paid by the Contractor and reimbursed by the Agency. The Contractor shall notify the Agency of any discrepancies between the Gas Company drawings and the project plans prior to proceeding with the work.

Temporary Water Service – Upon award of contract, the Contractor shall coordinate with Fontana Water Company to provide temporary water services via a temporary “highline” by-pass.

Temporary Water Bypass (Highline). A water line is to be constructed by Fontana Water Company (FWC) along S. Highland Avenue from San Sevaine Road to Cherry Avenue and extending north in front of the site where the new service meters will be located. Since completion of the new water line and installation of the new water services is expected to lag behind the start of construction, a temporary “highline” will be required to provide water to the site until the FWC water line project is completed. The temporary bypass (highline) shall be connected at the nearest source, which is at San Sevaine Road, and must deliver to the site at least 1500 gpm at 20 psi, in accordance with fire department requirements.

GENERAL: The Contractor shall construct the highline per Fontana Water Company (FWC) Standards and as approved by the City of Fontana. All pipe and components shall be in accordance with FWC requirements. The Contractor shall be responsible for protection of the highline and must make any

necessary repairs to the highline to maintain temporary water service to the site at all times until completion of the new FWC water line and new services. The Contractor shall be responsible for designing, furnishing, installing, maintaining, and removing the temporary bypass pipeline (highline) as necessary to maintain service to the site until completion of the FWC water line extension and installation of a new service meter at the site. The temporary by-pass shall be constructed to provide at least 1500 gpm at 20 psi.

MATERIALS: Highline materials shall be in accordance with applicable FWC standards. Pipe and fittings shall be clean and free of foreign material. All bypass piping shall be restrained as necessary to maintain integrity and in accordance with FWC requirements.

SUBMITTALS: The Contractor shall submit the highline plan(s) (including any temporary Traffic Control) to be reviewed and accepted by Fontana Water Company and the City of Fontana prior to installation.

INSTALLATION: During installation, maintenance, and removal of the temporary bypass, the Contractor shall maintain continuity and integrity of the temporary water conveyances. Street crossings will be required to be trenched and covered in accordance with FWC and City of Fontana standards.

MAINTENANCE: The Contractor shall provide to Fontana Water Company and the City of Fontana the names and phone numbers of personnel designated to perform maintenance and emergency repairs to the highline. The Contractor shall provide protection and maintenance of the highline as directed by the Engineer for traffic, and other safety concerns. Upon completion of the FWC line extension and installation of the new service meter at the site, the Contractor shall remove the temporary bypass and related facilities and complete all required repairs/restoration to the area including streets, driveways, curbs, sidewalks, and landscaping, and the area shall be left in a clean and orderly condition. The maintenance period shall be 120 calendar days or upon completion of new water services at the site, whichever occurs first.

PAYMENT: Payment for the temporary water bypass (highline) shall be in accordance with an approved Schedule of Values submitted by the contractor, including the incremental costs that comprise the lump sum bid price reflected in the Contractor's Bid Proposal. Payment shall be considered full compensation for all costs associated with the planning, installation, removal, and maintenance of the temporary highline, including, but not limited

to, all temporary connections, materials, components, and work necessary to design, install, operate, maintain, restrain, protect, dismantle, remove, and restore the temporary facilities as described above.

SECTION 404 – COLD MILLING

404-1 GENERAL

[Add the following]:

The Contractor shall remove existing overlay materials from gutters adjacent to any area specified to be cold milled, as directed by the Engineer. All terminations, or edges, of cold milling shall be vertical.

Temporary asphalt pavement shall be placed in header cuts at join lines with adjoining streets to provide smooth ramps for vehicular traffic. The temporary A.C. shall be placed after cold milling but prior to reopening the milled section of the road to traffic. The temporary A.C. shall be maintained in good condition by the Contractor until the road is overlaid.

At minimum, flagger control, pilot car, and appropriate signage on the street and adjoining streets shall be provided whenever lane closure is in effect on any streets where two 12-foot wide travel lanes cannot be maintained for two-way traffic. Pilot car, flaggers, traffic control setup workers and foreman shall have radio communication with each other.

For lane closure of less than 500 feet in length where there is direct and clear sight between flaggers, a pilot car will not be necessary subject to approval by the Engineer.

The Contractor shall cooperate with the various parties involved in the delivery of mail and the collection of trash and garbage to maintain existing schedules for these services.

Cold milling and pavement rehabilitation operations shall be conducted by the Contractor in a manner to provide a reasonably satisfactory surface for traffic.

When entering or leaving roadways carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

The Contractor shall notify all affected property owners of the proposed schedule a minimum of forty-eight (48) hours, but not more than seventy-two (72) hours, in advance of any limitation or closure of access to their property. Form of said notice shall be as approved by the Engineer and shall contain the date and time of the closure. In the event of delay, whether beyond the control of the Contractor or not, the Contractor shall notify all affected property owners as to the extent of the delay and his revised schedule. In the event of delay over seventy-two (72) hours, the Contractor shall re-notify the property owners as described above.

404-2 MILLING MACHINES

404-2.1 General [Add the following]:

The Contractor shall provide smaller machines if required to cold mill areas that are inaccessible to larger machines.

404-10 PAVEMENT TRANSITIONS

[Replace with the following]:

Structures and vertical joints within the cold-milled areas shall be ramped in conformance with 302-5.7 and 601-1. Ramps shall be constructed the same day as the existing pavement is cold milled and removed prior to placement of the permanent paving pavement.

PART 6 – TEMPORARY TRAFFIC CONTROL

SECTION 600 – ACCESS

600-1 GENERAL

[Add the following]:

Safe and adequate pedestrian and vehicular access shall be provided and maintained at all times in the vicinity of the Work Zone. Access to all affected residences/establishments shall be continuous and unobstructed unless otherwise approved by the Engineer.

Contractor shall not adversely affect public services, including but not limited to, emergency services, postal service, transportation, trash collection, etc. When necessary construction precludes such access, the Contractor shall make necessary arrangements and notify affected owners/residents/establishments and emergency services prior to any scheduled work.

600-2 VEHICULAR ACCESS

[Add the following]:

When necessary construction precludes driveway access, Contractor shall provide advanced notification and make necessary arrangements with the affected owner/resident/establishment at least one week prior to such restriction.

SECTION 601– TEMPORARY TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK ZONES

601-1 GENERAL

[Replace paragraph 1 with the following]:

Temporary traffic control (TTC) for construction and work zones shall conform to Part 6 of the California MUTCD, or California Temporary Traffic Control Handbook (CATTCH), the Specifications, and the temporary traffic control plan (TCP) if so included with the Plans or required to be prepared by the Contractor and submitted as a Working Drawing.

[Replace paragraph 7 with the following]:

For temporary resurfacing, if the Contractor elects to base pave work areas flush with existing pavement in lieu of placing temporary asphalt until the permanent resurfacing takes place, the top finish course section of the AC base pavement will not be measured separately for payment and shall be deemed to be included in the lump sum Bid price for Temporary Traffic Control. For areas where the entire width of the street is to be fully replaced, the City may allow the Contractor to base pave and leave the AC low, except at primary/major highway intersections.

The Contractor shall conduct roadway construction operations in a manner that provides a surface safe for vehicular traffic. All transverse vertical changes of pavement elevations shall have a beveled edge of 8 horizontal to 1 vertical or as determined by the Engineer. All longitudinal changes of pavement elevations shall not be exposed to traffic per the Traffic Control Plan.

[Add the following]:

Unless otherwise authorized by the Engineer, the Contractor shall maintain a minimum of one (1) lane open in each direction at all times. In special cases, the City may deem it necessary to have more than one (1) travel lane.

If in the opinion of the Engineer the Work creates excessive traffic delay the Contractor shall be required to provide flaggers to minimize traffic delays.

The Engineer reserves the right to make any changes to the traffic controls at any time. Any directed changes shall supersede these plans and shall be implemented at the sole expense of the Contractor.

No street or access closure to through traffic will be allowed without the express approval of the Engineer.

Payment for the above, including temporary AC pavement, shall be included in the lump sum Bid price for temporary traffic control.

601-2 TEMPORARY TRAFFIC CONTROL PLAN (TCP)

601-2.1 General [Replace paragraph 1 with the following]:

Unless otherwise authorized by the Engineer, the Contractor shall submit a Temporary Traffic Control Plan.

601-2.2 Payment [Replace with the following]:

Payment for preparation of the TCP, if so required, shall be included in the lump sum Bid price for Temporary Traffic Control.

601-3 TEMPORARY TRAFFIC CONTROL (TTC) ZONE DEVICES

601-3.4 Operations and Maintenance [Replace with the following]:

The Contractor shall be responsible for operation and maintenance of the TTC zone devices and services. The Contractor shall patrol and monitor the Work site to ensure that the TTC devices are in-place, properly positioned, and operational. The Contractor shall ensure that TTC devices are repaired, replaced, and cleaned as necessary, or as directed by the Engineer, to preserve their appearance and visibility. TTC devices that are damaged shall be repaired or replaced to the satisfaction of the Engineer. Operations and maintenance shall be completed within 48 hours.

601-3.5 Signs and Signage

601-3.5.1 General [Replace with the following]:

Unless otherwise specified, signs shall conform to the California MUTCD. Signs shall be in good working order and meet minimum retro reflectivity requirements.

Signage shall include all temporary signs required for the direction of traffic through or around the Work site. Sign placement shall conform to the California MUTCD and the TCP.

Temporary “No Parking” and “No Stopping” signs shall be installed at least 48 hours before enforcement. Temporary “No Parking” and “No Stopping” signs shall be installed and removed as specified in the Special Provisions.

601-3.5.2 Payment [Replace with the following]:

Payment for the above shall be included in the lump sum Bid price for temporary traffic control.

601-3.6 Channelizing Devices

601-3.6.2 Cones, Tubular Markers and Channelizers [Add the following]:

All cones, tubular markers and/or channelizers shall be retroreflective. The retroreflective material shall not be removable.

601-3.6.7 Payment [Replace with the following]:

Payment for the above shall be included in the lump sum Bid price for Temporary Traffic Control.

601-3.7 Traffic Sign Enhancement Devices

601-3.7.8 Measurement [Replace with the following]:

Flags, high-level warning devices, PCMS, flashing arrow signs, warning lights, and flashing directional bars will not be measured separately for payment.

601-3.7.9 Payment [Replace with the following]:

No separate or additional payment will be made for flags, high-level warning devices, PCMS, flashing arrow signs, warning lights, and flashing directional bars.

Payment for the above shall be included in the lump sum Bid price for Temporary Traffic Control.

601-4 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS

601-4.4 Measurement [Replace with the following]:

Application and removal of temporary traffic striping and pavement markings will not be measured separately for payment.

601-4.5 Payment [Replace with the following]:

Payment for application and removal of temporary traffic striping and pavement markings shall be included in the lump sum bid price for Temporary Traffic Control.

601-6 COVERING OF EXISTING TRAFFIC SIGNS AND SIGNAL FACES

[Replace with the following]:

601-6.1 General

Covering of any existing conflicting traffic signs and signal faces shall be performed in accordance with Section E of these Special Provisions

601-7 TEMPORARY TRAFFIC CONTROL GUIDELINES FOR WORK WITHIN OR ADJACENT TO RAILROAD RIGHT OF WAY

[Add the following]:

When Contractor's activities are within or are in the vicinity of rail facilities and/or the Pacific Electric Trail, temporary traffic control devices are required to facilitate the work, the Contractor shall coordinate with the applicable rail authority with regard to the traffic control devices required. The traffic control activities shall be coordinated with the applicable rail authority prior to the start of work. Queuing of vehicles across tracks shall not be permitted unless approved by the railroad authority. This coordination and all required traffic control devices and measures shall be included in the lump sum bid price for Temporary Traffic Control.

601-8 ADDITIONAL SAFETY PROVISIONS

[Add the following]:

The Contractor shall be responsible for safe, efficient and adequate methods and equipment during the progress of the work in order to ensure the safety of the workmen and the traveling public. In this respect, the Contractor is responsible for all traffic control measures undertaken 24 hours a day, 7 days a week until the Work is completed. In case of an emergency or an accident within the project construction work zone, the Contractor shall respond within half an hour of the observed emergency by the City Representative or Law Enforcement Agency. If the Contractor fails to do so, the City will rectify the situation in a safe and efficient manner and all expenses incurred would be back charged to the Contractor.

Adequate provisions shall be made for pedestrians through a zone of "Temporary Traffic Control" and construction work zone area. The following criteria shall be followed when planning for pedestrians in the aforementioned areas.

1. Pedestrians shall not be led into conflicts with work site vehicles, equipment, and operations.
2. Pedestrians shall not be led into conflicts with vehicles moving through or around the work site.
3. Pedestrians shall be accommodated with a 48"-wide path through the construction work zone. The path shall be convenient, continuous and accessible in accordance with ADA requirements. The path must resemble, as nearly as practical, the most desirable characteristics of the existing sidewalk(s) or footpath(s). The plans for pedestrian paths must be approved by the City's Traffic Engineer.
4. Consideration shall be given to separate pedestrian movements from both work site activity and vehicular traffic. When pedestrian movement through or around a work site is necessary, a separate usable footpath shall be provided. If the previous pedestrian facility was accessible to pedestrians with disabilities, the footpath provided during temporary traffic control shall, likewise, be in compliance with the ADA standards. When pedestrian and vehicle paths are rerouted to a closer proximity to each other, a temporary traffic barrier shall be utilized. If a temporary traffic barrier is utilized to shield pedestrians, it should be designed to accommodate site conditions.

The Contractor shall assume the defense of and indemnify and hold harmless the City and its officers and agent from all claims of any kind arising from the Contractor's own negligence or that of the Contractor's agents in the performance of the work under this contract.

The Contractor shall be responsible for the custody of any material or traffic control furnished by the Contractor and for the care of all work until its completion and final acceptance and the Contractor shall at the Contractor's own expense, replace damaged or lost material and repair damaged parts of the work, or the same may be done at Contractor's expense by the City.

PART 7 – STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS

SECTION 700 – MATERIALS

[Replace with the following]:

All work shown on the plans and contract bid specifications Section "E" shall be included in the lump sum contract price for the traffic signal work.

PART 8 – LANDSCAPING AND IRRIGATION

SECTION 800 – MATERIALS

All landscape work shall be done in accordance with the "Specification Manual for Streetscape and Park" provided under Supplemental Technical Specification, SECTION "D"

800-1 LANDSCAPING MATERIALS.

800-1.4 Plants [Add the following]:

All damage and reworked landscape areas shall be replaced to match the existing and to the satisfaction of the **City**.

SECTION 801 – INSTALLATION

801-8 PAYMENT

Payment for all landscaping and irrigation work as shown on the plans and the contract bid specifications shall be included in the Bid Items listed on bid proposal sheets and no additional compensation will be allowed.

SECTION D

CITY OF FONTANA LANDSCAPE SPECIFICATIONS

CITY OF FONTANA

ENGINEERING DEPARTMENT

STANDARD LANDSCAPE

SPECIFICATION MANUAL

FOR CITY MAINTAINED

STREETSCAPES, CFD's, AND PARKS

MAY 2022

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PART 1 – 1**1.01 RELATED DOCUMENTS**

- A. *Review the General Conditions, Standards Specifications and Special Provisions which contain information and requirements that apply to this section.*

1.02 WORK INCLUDED

- A. *The Contractor shall supply all material, pipe, pipe fittings, automatic valves, wiring, and all labor to install a fully **Reclaimed Water** automatic sprinkler system. Restore any existing landscaping that may be disturbed during the installation.*

1.03 RELATED SECTIONS

- A. *Lawns & Grasses - Section 02930*
- B. *Trees, Shrubs, Vines and Groundcover - Section 02950*
- C. *Landscape Maintenance - Section 02970*
- D. *Electrical - Section 16000*

1.04 QUALITY ASSURANCE AND REQUIREMENTS

- A. *Permits and Fees: The Contractor shall obtain and pay for any and all permits and all inspections as required.*
- B. *Manufacturer's Directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturer of articles used in this contract furnishes directions covering points not shown in the drawings and specifications.*
- C. *Ordinances and Regulations: All local, municipal and state laws, and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard of larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.*

D. Applicable Standards: *General Conditions, Special Provisions, City of Fontana's Landscape Ordinance No. 1734, and Landscape construction standards Section 5000.*

E. Superintendent:

1. *A superintendent satisfactory to Agency's Authorized Representative who understands and SPEAKS ENGLISH FLUENTLY shall be present on the site at all times during progress of the work.*
2. *The Superintendent shall not be changed except with the consent of the Agency's Authorized Representative.*
3. *The Superintendent shall be authorized to represent the Contractor.*

F. Explanation of Drawings:

1. *Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishings such fittings, etc., as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features.*
2. *All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.*
3. *The irrigation system as shown on the drawings shall not be installed when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect and City's Authorized Representative. In the event this notification is not performed, the irrigation Contractor is responsible for any revision necessary.*
4. *No materials are to be purchased or installed as noted in legend on the drawing when it is obvious there is an error or discrepancy. In addition, failure to obtain prior material approval, risks rejection by the Agency's Authorized Representative. By failing to bring material discrepancies to the attention of the Agency's Authorized Representative or by failure to comply with materials submittals, the Contractor is responsible for any revisions necessary.*
5. *Work of this Section which is associated with the work of other trades shall be coordinated as necessary.*

6. *It is the intent of the drawings and specifications to provide an irrigation system with head to head coverage. The contractor is responsible for any misinterpretation of the drawings prior to or during construction. Should any discrepancy arise as to the interpretation of the drawings or specifications, the final decisions in the matter will rest with the Agency's Authorized Representative.*
- G. Underwriters Laboratories: *Electrical wiring, controls, motors, and devices shall be U.L. listed, and so labeled.*

1.05 SUBMITTALS

A. Material List:

1. *The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written acceptance by the Agency's Authorized Representative.*
2. *Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.*
3. *Equipment or materials installed or furnished without prior approval of the Agency's Authorized Representative may be rejected and the Contractor is required to remove such materials from the site at his own expense.*
4. *Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.*
5. *Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.*
6. *If equipment is as specified, no manufacturer descriptive catalogs are necessary in submittal.*

B. Record Drawings:

1. *The Contractor shall provide and keep up to date and complete "record" set of red line drawings which shall be corrected daily and show every change from the original drawings and specifications and the exact "asbuilt" locations, sizes, and kinds of equipment. Prints for these purposes shall be the contractor's responsibility. This set of drawings shall be kept on the site and shall be used only as a record set.*

2. *The drawings shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. These drawings shall be available at all times for site reviews and shall be kept in a location designated by the Agency's Authorized Representative.*
3. *The Contractor shall make neat and legible notations on the As-built's progress sheets daily as the work proceeds, showing the work as actually installed. For example, should a piece of equipment be installed in a location that does not match the plan, the Contractor must indicate that equipment has been relocated in a graphic manner so as to match the original symbols as indicated in the irrigation legend. The relocated equipment and dimensions will then be transferred to the original record drawings at the proper time.*
4. *Before the date of the final site review, the Contractor shall transfer the Asbuilt's set of red line drawings to the Agency's or developers Authorized Representative who will deliver them to the Landscape Architect of record. The Landscape Architect shall transfer all information from the As-built's set of prints to a sepia Mylar or similar Mylar material. All work shall be in water-proof India ink and applied to the Mylar by a technical pen made expressly for use on Mylar material. Such pen shall be similar to those manufactured by Rapidograph, Kueffel & Esser, or Faber Castell. The dimensions shall be made so as to be easily readable even on the final controller chart (see Section 1.05C). **The original Mylar "record" plan shall be submitted to the Agency's Authorized Representative for approval prior to the making of controller charts.***

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. *Handling of P.V.C. Pipe and Fittings: The Contractor is cautioned to exercise care in handling, loading, unloading, and storing of P.V.C. pipe and fittings. All P.V.C. pipe shall be transported in a vehicle which allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping.*
- B. *When pipe is stored outdoors, it shall be covered to protect it from sunlight.*

1.07 SUBSTITUTIONS

- A. *If the Irrigation Contractor wishes to substitute any equipment or materials for those equipment or materials listed on the Irrigation drawings and specifications, he may do so by providing the following information to the Agency's Authorized Representative for approval:*

1. *Provide a statement indicating the reason for making the substitution. Use a separate sheet of paper for each item to be substituted.*
 2. *Provide descriptive catalog literature, performance charts and flow charts for each item to be substituted.*
 3. *Provide the amount of cost savings if the substituted item is approved.*
 4. *Approval of any item as a substitution or alternate is for design only, based on information or samples provided by the Contractor.*
 5. *Contractor shall be responsible for the total performance of such substitution to equal or surpass the original in every respect.*
 6. *If the substitution proves to be unsatisfactory in the opinion of the Agency's Authorized Representative, Contractor shall remove such work and replace it with originally specified item (including installation) as part of the work of this section.*
- B. *The Agency's Authorized Representative shall have the sole responsibility for accepting or rejecting any substituted item as an approved equal to equipment and materials listed on the irrigation drawings and specifications.*

1.10 CONNECTIONS TO UTILITIES

1. *Source of Water and Power Supply:* *Verify and be familiar with the location, size and detail of stub-outs provided as the source of water and electrical supply to the sprinkler system, as shown on the plans. Source of water supply and point of connection shall be new water meters or stubouts at approximate locations as shown on plans. (Unless otherwise noted).*
2. *Appropriately sized gate valves that match the size of the irrigation system will be provided by the contractor to the appropriate water company at time of meter install.*
3. *Utilities Service Charges:* *The contractor is responsible for all utilities service charges related to the work during the course of construction and construction maintenance periods until the project has been accepted by the Agency. Payment for the utilities service charges shall be considered as included in the prices paid for various items of work and no additional compensation will be made therefore.*
4. *Existing Utilities and Conditions:* *Prior to any excavation, call Dig Alert or USA (800-422-4133) to locate all cables, conduits, sewer septic tanks, and other utilities that are commonly encountered underground, and take proper precautions not to damage or disturb such improvements. If a*

conflict exists between the construction plan location of facilities and existing facilities promptly notify the Agency, who will arrange for relocations. Proceed in the same manner if rock layer or any other conditions encountered underground make changes advisable.

5. *Subsurface Condition:* *Where investigation of subsurface conditions has been made by a qualified Geotechnical and Environmental Sciences consultant in areas in which local materials may be obtained, the Contractor may request the use of such information, but will be directly responsible for its verification and accuracy.*

1.11 CONSTRUCTION OBSERVATION

1. *Notification and Access: At all times permit the Agency or its authorized agents to visit and observe the work or any part thereof. Maintain proper facilities and provide safe access for such observations to all parts of the work. Where the specifications require work to be tested, it shall not be covered up until tested or approved by the Agency and governing agencies. The Contractor shall be solely responsible for notifying the Agency's Authorized Representative forty-eight (48) hours notice minimum required, where and when such work is in readiness for approval, it shall, if so ordered, be uncovered at the Contractor's expense.*
2. *Observations required:*
 - a. *Preconstruction meeting.*
 - b. *Layout of control equipment and heads (All concrete headers to be installed prior to head layout).*
 - c. *Monitor grading to insure proper drainage prior to sod and plant installation.*
 - d. *Main line pressure test, sleeves and trench depth check. Mainline pressure test-150 PSI for 3 hours (prior to valve installation)*
 - e. *Lateral trench depth check, lateral lines and head assemblies.*
 - f. *Controller pedestal install and layout (Building and Safety inspects the actual meter pedestal)*
 - g. *Irrigation Controller unit install operation and certification.*
 - h. *Coverage test and prefinal observation. (The Agency's Authorized Representative and a City of Fontana Operation & Maintenance Inspector must be present. The Agency's authorized representative*

who will provide in writing the approval to proceed with the planting operation.)

- i. Finish grade should be 1 ½ "below all surrounding hardscapes.*
- j. All heads should be 1 ½ "above the finish grade.*
- k. Any heads in swales need to be removed.*
- l. No fixed risers in any traffic areas, they are only allowed against buildings and walls.*
- m. Inspect the installation of the sod to insure that there are no gaps between the pieces of sod.*
- n. Inspect plant material before it is installed into the ground, trees, shrubs, etc.*
- o. Check plant material and sod areas for any issues with settling dirt, missing or dead plants, and missing mulch.*
- p. When hydro seeding finish grade should be 1" below all hardscapes.*
- q. Inspect for root barriers along sidewalks.*
- r. Check root-ball location on all trees, the root ball should be at ground level.*
- s. Trees are required to have 4 ties each interlocking each other and every tree in the turf area must have an arbor guard. Also make sure trees are tied as the specifications state on the plans with two stakes at a 45° Angle toward the prevailing wind direction.*
- t. Inspect for concrete mow curbs, mow curbs shall be placed between all grass, planter areas, mulch, decomposed granite, and anywhere landscape material transitions or abuts a differing material, unless otherwise noted.*
- u. All boxes should be set to surrounding grade to allow for easy maintenance and the box and valves need to be tagged properly.*
- v. Gravel needs to be in all irrigation boxes.*
- w. Inspect backflow cages and make sure that they have a secure lock box installed and a backflow certification has been completed.*

- x. *Final observation.*
 - 1. *Make sure the whole job site is rid of any hazards that may pose a risk to the public.*
 - 2. *Developer/contractor to perform a head to head coverage test on the turf and in all irrigation areas in the planters on final walk thru with the Engineering Public works inspector and a Landscape Technician from the Public Works Department.*

1.12 COMPLETION

- A. *In judging the work, no allowance for deviation from the original plans and specifications will be made unless previously approved by the Agency.*
- B. *When any item appears on the plans and not in the specifications, or in the specifications and not on the plan, it shall be considered in both.*
- C. *The Agency or its authorized representative shall have the final authority on all items of the project.*

1.14 SERVICE BY THE CONTRACTOR

- A. *The Contractor shall service the system at the Agency's request during the guarantee period and shall be paid for work performed which is not covered by the guarantee. If requested by the Agency, the Contractor shall furnish the Agency with a schedule of service fees.*

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: *Use only new materials of brands and types noted on drawings, specified herein, or approved equals.*

2.02 PIPES AND FITTINGS

- A. ***Reclaimed Purple Pipe Shall be Used for All Applications to Make A Complete Reclaimed Water system***
- B. Pressure Main Line Piping and Fittings: *Pipe sizes two (2) inches or larger shall be P.V.C. Class 315 solvent weld type.*
- C. Pressure Main Line Piping and Fittings: *Pipe sizes smaller than two (2) inches shall be Scheduled 40 P.V.C.*

- D. Sleeves or conduit lines: Shall be installed under all paving (asphalt concrete or concrete); shall be P.V.C. Schedule 40; shall be two times diameter of the pipe enclosed; shall be installed under paving a minimum 24 inches depth; shall have separate sleeves for control wire, pressure mainline and non-pressure lateral line. Control wire sleeve size shall be as required to allow ample room for any future wire installation. (Twice the diameter of the wires to be sleeved, 1" diameter minimum sized sleeve). **Main line shall have a tracing wire for future locating and a plastic box at finish grade housing the tracing wire.**
- E. All pipe fittings shall conform to specific requirements as follows:
1. P.V.C. (Solvent Weld)
 - a. Reclaimed Purple Pipe: Manufactured from virgin polyvinyl chloride compound in accordance with ASTM D 1784 or ASTM D 2241, cell classification 12454B, hydrostatic design stress rating not less than two thousand (2,000) p.s.i.
 - b. Fittings (solvent weld or thread): Standard weight, Schedule 40, side gated, injected molded P.V.C. complying with ASTM D 1784, cell classification 13454B, including threads when required.
 2. P.V.C. nipples shall be scheduled 80 with molded threads.
 3. All P.V.C. pipe must bear the following markings:
 - a. Manufacturer's name
 - b. Nominal pipe size
 - c. Schedule or class
 - d. Pressure rating in A.S.T. (not required on drip tubing)
 - e. NSF (National Sanitation Foundation) approval (not required on drip tubing)
 - f. Date of extrusion
 4. Brass Pipe & Fittings:
 - a. Brass pipe shall be eighty-five (85) percent red brass, American National Standard Institute (ANSI), Schedule 40 screwed pipe.
 - b. Fittings shall be medium brass, screwed 125-pound class.
 5. Solvent cement and primer for P.V.C. solvent-weld pipe and fittings shall be of type and installation method prescribed by the manufacturer.

6. *Where called for on drawings, pipe shall be bell end, conforming to ASTM D-2672. Install concrete thrust blocks as recommended in Johns-Manville installation guide no. TR-624, where conditions dictate.*

2.03 ELECTRIC (HIGH VOLTAGE)/ METER ENCLOSURE

- A. *All high voltage electrical service required for automatic controller and other equipment noted on drawing for irrigation system will be provided by Contractor.*
- B. *Enclosure and irrigation controller to be purchased from the approved contractor shown on the plans or the Construction specifications Provide approved type enclosure for meter, similar to that manufactured by V.I.P. Strong Box as specified on drawing. Enclosure shall be of adequate size to house automatic controller specified on drawing. Enclosure shall be stainless steel, minimum twelve (12) gauge in thickness. Exterior covers to be minimum fourteen (14) gauge steel and shall have padlocking provisions. All factory installed components shall be U.L. listed. All factory installed conductors shall be copper, size and type conform to NEC and U.L. requirements. Enclosure shall be furnished with a detachable subbase with one-half (2) inch diameter bolts. Mounting bolts shall consist of one (1) zinc chromate primer and two (2) coats baked enamel paint.*
- C. *Electrical equipment installed outside building shall be NEMA 4 type.*
- D. *Pump starter. Provide flow switch of type as noted on drawing and connect to time delay switch and magnetic starter.*
- E. *All connections between electrical services and equipment shall be in rigid PVC or galvanized electrical conduit, with conduit and wiring size as required.*

2.04 ELECTRICAL (LOW VOLTAGE)

- A. *Connections between controller and remote-control valves shall be made with direct burial A WG-UF, 600-volt wire, insulation thickness three-sixty-fourths (3/64) inch, utilizing low density high molecular weight polyethylene insulation.*
- B. *Splices, where permitted, shall be waterproofed using Rain Bird, Pen-Tite Connectors or fusible heat shrinking tubing, and housed in a box. Boxes for other irrigation use may be utilized for this purpose.*
- C. *Wire sizing shall be a minimum of #14 "UF" 600-volt underground wiring, unless a shielded cable is used in which case #18 wire may be used. Common wire to be white in color, and all others a different color.*

Electrical control wire shall be AEF 14 AWG Type UP 600 volt (U.L.) direct burial. The wire shall be bundled, taped every ten (10) linear feet, placed adjacent to the main line. An eighteen (18") inch expansion loop will be provided for every change of direction greater than 45°.

The common wire shall be white, and the valve control wires shall be black and marked with numbered tags at both ends to identify the valve zones and controller.

The control wire shall be installed at a depth of 18" minimum below finish grade and sidewalk and sleeved 24" minimum below hard surfaces (i.e. driveways, parking lots, and 36" for streets) and backfilled with grey sand. At each electric control valve an expansion coil of twenty-four (24") inches minimum per wire shall be provided. The coil can be achieved by coiling (winding) the wire around a piece of 3/4 PVC pipe. At the controller pedestal, each control wire shall be twenty-four (24") inches longer than the required connection. The installed wire shall be neatly organized with the excess wire looped and secured to the bottom of the controller cabinet. The control wire shall be sleeved separately in SCH 40 PVC pipe sized to the number of wires to be sleeved (minimum 1" inch) under all hard surfaces.

When valve control wiring from two (2) different controllers is located within the same trench, the second controllers wiring shall be as follows:

Common Wire: White with a colored strip

Pilot Wire: Red with tags at each end identifying the controller with valve number and controller I.D.

Additional controller wiring in the same trench from a third, fourth, or more controllers shall be different in color for the pilot wires and the common wire shall be white with a different colored strip. The pilot wires shall be tagged identifying the valve and controller.

***4 Extra control pilot wires** will be installed at each controller to the terminal end. The extra wire(s) shall be looped a minimum of 48" up into each valve box. The extra wires will be identified as extra and numbered with tags at each valve box.*

All valve control wiring shall be continuous runs. Splicing of wire is unacceptable and will be rejected, unless otherwise approved by the City Landscape Inspector.

2.05 GATE VALVES

- A. *Three (3) inches and smaller (unless otherwise noted on Drawings): ASTM B-62 brass body, 150-pound saturated steam rated; with screwed joints; non-rising stem; screwed bonnet, solid disc. Provide with hand wheel.*
- B. *Four (4) inches and larger (unless otherwise noted on Drawings): ASTM A126 Class B, iron body 150-pound w.o.g. with flanged joints, non-rising stem, bolted bonnet, and double disc. Provide with hand wheel.*
- C. *Gate valves shall be NIBCO or Hammond brands or approved equal. **2.06 QUICK***

COUPLING VALVES

- A. *Brass body, 150-pound class, with three-fourths (3/4) inch female threads opening at base, permitting operation with a special connecting device (coupler) designed for this purpose. [Rain Bird #33DNP or equal].*
 - 1. *Coupler threads: lug type*
 - 2. *Hinge cover: Provide with rubber-like vinyl cover.*
- B. *Quick coupler(s) shall be installed within a ten (10) inch round lockable plastic valve box placed a maximum of 150 lineal feet apart.*
- C. *Quick coupler(s) shall be supported with a SCH 40 PVC pipe stake or equal of adequate length. The quick coupler shall be attached to the metal stake with two (2) stainless steel hose clamps.*
- D. *The quick coupler shall be attached to the main line via a triple swing assembly.*

2.07 BACKFLOW PREVENTION UNITS

- A. *Backflow preventer design to operate on a "reduced pressure" principle; equipped with gate valves and field test cock.*
- B. *Wye strainers in backflow prevention units shall be 125# class cast brass with forty (40) mesh Monel screen, unless otherwise noted on drawing.*
- C. *The backflow unit shall be housed in a protective housing as noted on drawing or equal as approved by the City.*
- D. *Backflow device shall be Per City Std Plan Number 5007*

Wilkins 375XL lead free Plastic Backflow Preventer

Wilkins 500XL Pressure Regulator Low Range for pressures from 0 PSI to 75 PSI lead free

Wilkins 600XL Pressure Regulator High Range for pressures from 75 PSI to 120 PSI lead free

Install EZ-Flo fertilizing system EZ0XX-HC install directly in the irrigation mainline after the backflow preventer. SIZED PER STD 5007.

2.08 AUTOMATIC CONTROLLER

- A. *Refer to City Std Plan No. 5005 for contact information, assembly model numbers and other details regarding irrigation controllers.*

2.09 REMOTE CONTROL VALVES

- A. *Valve type: spring-loaded, pack less diaphragm activated, normally closed type with brass body, equipped with flow control and pressure regulation. Electric valves shall be Rain Bird with pressure regulator capabilities or approved equal.*
- B. *Valve solenoid: 24-volt a.c. 4.5 watt maximum, 500 mili-amp maximum surge, corrosion-proof, stainless steel construction, epoxy encapsulated to form a single integral unit.*
- C. *Provide bleeder valve to permit operation in the field without power at the controller.*
- D. *Valves shall be installed a minimum of six (6) feet from all fixed objects and twentyfour (24) inches apart. [One (1) valve per box; valve boxes shall be installed a minimum of twelve (24) inches apart].*
- E. *Valves shall not be installed in a manifold configuration unless otherwise noted on approved plans.*
- G. *Valves for planted annual color beds shall be on a separate valve*
- F. *FLOMEC Flow sensors that detect flow conditions created by system damage or malfunction are required for all on non-residential landscapes, residential landscapes of 5000 sq. ft. or larger, and CFD's and must be connected to the controller. See Std Dwg# 5010 for details*
- H. *To greatly reduce any water loss due to a leaking station valve. Rain bird, master shut-off valves are required to be installed at the irrigation supply point which controls water flow into the irrigation system and must be connected to the controller. See Std Dwg# 5010 for details*

2.10 SMALL LAWN SPRINKLER HEADS – RAIN BIRD 1800

- A. *Sprinklers shall be similar in all respects to type noted in legend on drawing.*
- B. *Nozzle shall rise a minimum of 6 inches.*
- C. *All sprinkler bodies or nozzles shall be equipped with a built-in check valve for eliminating low head drainage.*
- D. *The sprinkler heads shall be attached to the lateral lines via a triple swing assembly.*

2.11 SMALL SHRUBBERY SPRINKLER HEADS – RAIN BIRD 1800

- A. *Sprinklers shall be similar in all respects to type noted on drawing.*

2.12 ROTARY SPRINKLER HEADS Rain Bird Falcon 5000

- A. *Type: gear driven, with pop-up sprinkler heads equipped with built-in check valves.*
- B. *Part circle heads shall have variable arc setting.*
- C. *Rotary sprinkler heads shall be attached to the lateral lines via a triple swing assembly.*

2.13 VALVE BOXES

- A. *Carson Brand Valve boxes shall be fabricated from a durable plastic material resistant to weather, sunlight and chemical action of soils with **Purple** covers.*
- B. *Remote control valve and flow sensor boxes shall be **Purple** rectangular lockable plastic boxes (12" x 18") AMETEK or approved equal, with hinged snap covers.*
- C. *Gate valve boxes shall be **Purple** ten (10) inch round lockable plastic boxes with exterior as required to properly protect valve, AMETEK or approved equal.*
- D. *Refer to City Std Plan No. 5047 for valve box installation*

2.14 TREE IRRIGATORS (DRIP/BUBBLERS)

- A. *Provide assemblies as indicated on drawings, including vents.*

2.15 PUMPS (All Pumps to be Variable Speed)

- A. *Provide pump with capacity and total dynamic head as noted on drawing.*
- B. *Booster package shall be mounted on a common steel base with all interconnecting piping and wiring completed prior to shipment.*
- C. *Booster station shall be complete with a flange, suction and discharges. Bronze fitted close coupled centrifugal pump with HP, voltage, and cycle as noted on drawing. Unit to be completed with a Simplex UL listed control panel in NEMA 3 weather proof enclosure with magnetic starter. Fusible disconnect switch, HOA selector switch, control transformer, and relays as required.*
- D. *Booster pump station shall be completely enclosed in a 14 gauge enclosure, of a size to fit pump, fittings, and control panel as shown in detail. If not stainless steel the unit will be painted with two coats of Rust-o-leum, HUNTER green color. Mechanical hinges shall be installed for support of lid.*
- E. *Pumps shall be controlled by the following:*

1. *Pressure switch with minimum run timer mounted inside electrical panel with two contact points Mercoird DP Series.*
 2. *Flow switch.*
- F. *The pump shall be equipped with the following additional controls:*
1. *Low suction pressure shut down.*
 2. *High discharge pressure shut down.*
- G. *Retain a factory-trained representative to check installation and perform start-up services, including adjustment of all equipment.*

2.16 RAIN BIRD XF SERIES DRIP IRRIGATION

- A. *Provide all labor, materials, supplies, equipment, tools, and transportation, and perform all operations in connection with and reasonably incidental to the complete installation of the XF SERIES drip irrigation system that is applicable to the application, as shown on the drawings, the installation details, and as specified within the manufactures requirements and specifications for the applicable applications for the type of drip system chosen.*

PART 3 - EXECUTION

3.01 SITE CONDITIONS

- A. *All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions and receive Agency's Authorized Representative's approval prior to proceeding with work under this section.*
- B. *USA/Dig Alert (1-800-422-4133) shall be contacted, and all utility lines marked prior to excavating. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect. Check existing utilities drawings for existing utility locations.*
- C. *Coordinate installation of sprinkler irrigation materials including pipe, so there will be No interference with utilities or other construction or difficulty in planting trees, shrubs, and ground covers.*
- D. *The Contractor shall carefully check all grades to satisfy themselves that they may safely proceed before starting work on the sprinkler irrigation system.*

E. *Discrepancies:*

1. *In the event of discrepancy, immediately notify the Agency's Authorized Representative.*
2. *Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.*

3.02 PREPARATION

A. *Water Supply:*

1. *The Contractor will provide new meters and is responsible for obtaining all permits and the installation of the meters.*
2. *Sprinkler irrigation system shall be connected to water supply points of connection as indicated on the drawings.*
3. *Connections shall be made at approximate locations as shown on drawings. Contractor is responsible for minor changes (plus or minus 20 feet) caused by actual site conditions.*

B. *Observation Schedule:*

1. *Contractor shall be responsible for notifying the Agency's Authorized Representative in advance for the following observation meetings, according to the time indicated:*
 - a. *Pre-Construction Meeting - five (5) days.*
 - b. *Pressure supply line installation, sleeves and testing - seventy-two (72) hours.*
 - c. *Control wire installation and sleeves - seventy-two (72) hours.*
 - d. *Lateral line, sleeves and sprinkler installation - seventy-two (72) hours.*
 - g. *Final site review - five (5) days.*
2. *When observations have been conducted by other than the Agency's Authorized Representative, show evidence in writing and photos of when and by whom these observations were made.*
3. *At all times maintain a current and updated set of plans on the job site. No site observations will commence without record drawings. In the event the Contractor calls for a site visit without preparing the system for said visit, he shall be responsible for reimbursing the Agency's Authorized Representative at his current billing rates per hour, portal to portal, (plus transportation costs) for inconvenience. No further site visits will be scheduled until this charge has been paid and received.*

C. Physical Layout:

1. *All piping or equipment shown diagrammatically on drawings outside planting areas shall be installed inside planting area whenever possible and to exact dimensions as noted in construction details.*

3.03 INSTALLATION

A. General:

1. *All plastic pipe and fittings shall be installed in complete accord with manufacturer instructions for same.*
2. *If gasket type pipe and/or any pipe is larger than two and one half (2-1/2) inches is used, provide concrete thrust blocks at each change of direction and at terminal points of all rubber gasket piping. Block in accord with pipe manufacturer's instructions.*
3. *Line Clearance: All lines shall have a minimum clearance of six (6) inches from each other and from lines of other trades. Parallel lines shall not be installed directly over one another.*

B. Trenching:

1. *Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:*
 - a. *Fourteen (14) inches over non-pressure rotor pop-up lines (minimum).*
 - b. *Twelve (12) inches over non-pressure lateral lines (minimum).*
 - c. *Eighteen (18) inches over potable sprinkler mainline.*
 - d. *Twenty-four (24) inches cover minimum over pipe serving a drinking fountain or pressure sprinkler mainline three (3) inches and larger.*
 - e. *Where pipe and/or control wiring crosses under paving, it shall be sleeved separately twenty-four (24) inches below sub grade. **All crossings shall have trace wires and 3" Letters IX for irrigation crossing etched on the curb as well as an 8" round box with the tracing wire coiled in the box. Location to be approved by the City inspector.***
 - f. *Surplus earth remaining after backfilling shall be disposed of on/off the premises as directed by the Agency.*

- g. Eighteen (18) inches cover over control wires (minimum).*
- 2. Trench bottom shall be flat to ensure piping is supported continuously on an even grade with 3" sand bedding.*
- 3. Where lines occur under paved areas, consider dimension to be below the subgrade.*
- 4. Excavate trenches to required depths. Follow approved layout for each system.*

C. Backfilling:

- 1. Buried pipe in trenches shall be center loaded only until all required tests are performed. Trenches shall be carefully backfilled with the excavated materials approved for backfilling, consisting of earth, loam, sandy clay, sand, or other approved materials, free from large clods of earth or stones. Backfill shall be mechanically compacted in landscaped areas to a dry density equal to adjacent undisturbed soil in planting areas. Backfill will conform to adjacent grades without dips, sunken areas, humps or other surface irregularities.*
- 2. A fine granular material backfill will be initially placed on all lines. No foreign matter larger than one half (2) inch in size will be permitted in the initial 6" of backfill measured from the top of the pipe. Two (2) inch rock screening of backfill material is acceptable.*
- 3. Flooding of trenches will be permitted only with approval of the Agency's Authorized Representative.*
- 4. If settlement occurs and subsequent adjustments in pipe, valves, sprinkler heads, lawn or planting areas, or other construction are necessary, the Contractor shall make all required adjustments without cost to the Agency.*

D. Trenching and Backfill Under Paving:

- 1. Trenches located under areas where paving, asphaltic concrete or concrete will be installed shall be backfilled with sand (a layer three (3) inches below the pipe and six (6) inches above the pipe), and compacted in layers to (95) percent compaction using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in a firm unyielding condition. All trenches shall be left flush with the adjoining grade. The Sprinkler Irrigation Contractor shall set in place sleeves, cap and pressure test all piping under paving prior to paving work.*
- 2. Piping under existing walks is generally done by jacking, boring or hydraulic driving. Any cutting or breaking of sidewalks and/or concrete necessary shall be performed by the Contractor, and paving replaced in kind as a part*

of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the Agency's Authorized Representative. No hydraulic driving will be permitted under asphaltic concrete paving.

- 3. Coordinate installation of sleeves for piping and wires under paved areas with General Contractor.*
- 4. The installing contractor will install sleeves for future installation of water lines and wires unless otherwise noted.*

E. Assemblies:

- 1. Routing of sprinkler irrigation lines as indicated on the drawings is diagrammatic. Install lines (and various assemblies) in such a manner as to conform to the details per plans.*
- 2. Install NO multiple assemblies in plastic lines. Provide each assembly with its own outlet.*
- 3. Install all assemblies specified herein in accordance with respective detail. In absence of detail drawings or specification pertaining to specific items required to complete work, perform such work in accordance with best standard practice, with prior approval from Agency's Authorized Representative.*
- 4. P.V.C. pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.*
- 5. On P.V.C. to metal connections, the Contractor shall work the metal connections first. Teflon tape or approved equal shall be used on all threaded P.V.C. to P.V.C., and on all threaded P.V.C. to metal joints. Light wrench pressure is all that is required. Where threaded P.V.C. connections are required, use the threaded P.V.C. adapters into which the pipe may be welded.*
- 6. Quick coupling valves: Unless otherwise indicated, locate valves within twelve (12) inches of hardscape.*
- 7. Install backflow assemblies in shrub areas at minimum height permitted by local codes, unless otherwise approved.*
- 8. All major equipment shall be verified for exact location with the Agency's Authorized Representative.*

F. Automatic Controller:

1. *Install as per manufacturer's instructions. Remote control valves shall be connected to controller in numerical sequence as shown on drawings.*
2. *Controller shall be mounted inside the electrical pedestal.*

G. Flushing System:

1. *After all new sprinkler pipe lines and risers are in place and connected, all necessary diversion work has been completed, and prior to installation of sprinkler heads, the control valves shall be opened, and full head of water used to flush out the system.*
2. *Sprinkler heads shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Agency's Authorized Representative.*

H. Sprinkler Heads:

1. *Install the sprinkler heads as designated on the drawings and in accordance with their respective detail.*
2. *Spacing of heads shall not exceed the maximum indicated on the drawings. In no case shall the spacing exceed the maximum recommended by the manufacturer.*
3. *The Contractor is responsible for the placement of heads to achieve head to head coverage.*

I. Valve Boxes:

1. *All buried valves and equipment shall be installed with a proper box.*
2. *Fill area under box with a minimum of three (3) cubic feet of three-fourths (3/4) inch gravel before box is installed.*
3. *Identification tags shall be attached to each remote-control valve, showing number that corresponds with controller sequence. Tags shall be manufactured of polyurethane Behr Desopaid, purple in color with black letters two and three-fourths (2-3/4) inches by two and one-fourth (2-1/4) inches.*
4. *Brand valve box covers in four (4) inch high numbers that corresponds to sequencing shown on drawings.*
5. *Refer to City Std Plan No. 5047 for valve box installation*

J. Electrical Supply:

1. *220-volt electrical service for pump shall be provided for by Contractor.*

2. *Low voltage wiring shall be placed in the same trench and along side of main lines unless otherwise approved.*
3. *When more than one wire is placed in a trench, tape wires together at a maximum ten (10) feet on center.*
4. *Provide an eighteen (18) inch expansion loop at each directional change, and a twenty-four (24) inch coil at each connection.*
5. *Use a continuous wire between controller and remote-control valves. Except as otherwise approved, do not splice at any point. All approved splices shall be enclosed in an acceptable box.*
6. *Each controller shall be provided with separate ground wire.*

K. *Control Wires:*

1. *All electrical equipment and wiring shall comply with local and state codes and be installed by those skilled and licensed in the trade. Unless the governing code specifies otherwise, low voltage control wire may be installed by the sprinkler irrigation Contractor.*
2. *Connecting and splicing of wire at the valves shall be made using Pen-Tite Connectors, Scotch-Lok, or approved equal. No other splices will be allowed.*
3. *Tape all control wire to the side of all mains at ten (10) foot intervals.*

3.04 FIELD QUALITY CONTROL

A. *Adjustment of the System:*

1. *The Contractor shall adjust all sprinkler heads and valves for optimum performance and to prevent as much as possible any overspray onto walks and roadways. No spray is permitted on buildings.*
2. *If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments prior to planting. Adjustments may include changes in nozzle sizes, trajectory of spray or degrees of arc, as required.*
3. *All sprinkler heads shall be set perpendicular to finished grades unless otherwise designated on the plans and at height and distance from walks, buildings, etc., as noted.*

B. *The Contractor is responsible for protecting all existing landscaping. Any existing landscaping removed shall be properly replaced, including any sod.*

C. *Testing of Irrigation System:*

1. *Test all pressure lines under hydrostatic pressure at one hundred fifty (150) pounds per square inch or fifty (50) pounds per square inch more than the normal static pressure (whichever is greater) and prove watertight. Note: This test must be performed prior to paving and must hold pressure on a pressure gauge for **three (3) hours**.*
2. *Testing of pressure main lines occur prior to installation of electrical control valves, quick couplers or any other equipment that might prevent a proper test from being performed.*
3. *All piping under paved main lines shall be tested under hydrostatic pressure of one hundred fifty (150) pounds per square inch or fifty (50) pounds per square inch more than normal static pressure (whichever is greater) and proved watertight. Note: This test must be performed prior to paving and must hold pressure on a pressure gauge for **three (3) hours**.*
4. *Sustain pressure in lines for not less than three (3) hours. If leaks develop, replace joints and repeat test until entire system is proved watertight.*
5. *All hydrostatic tests shall be made only in the presence of the Agency's Authorized Representative, or other duly authorized representative of the Agency. No pipe shall be completely backfilled until it has been inspected, tested and approved in writing.*
6. *Furnish necessary pressure force pump and all other test equipment.*
7. *When the sprinkler irrigation system is completed, perform a coverage test in the presence of the Agency's Authorized Representative, to determine if the water coverage for planting areas is complete and adequate. Furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from plans, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the Agency's Authorized Representative. This test shall be accomplished and passed before any ground cover of turf is planted.*
8. *Upon completion of each phase of work, entire system shall be tested and adjusted to meet site requirements.*
9. *Low voltage wiring under paving shall be tested for continuity, prior to paving when over fifty (50) feet.*
10. *No planting of trees, shrubs, ground cover or turf shall be installed prior to approval of the irrigation coverage test by the Agency's Authorized Representative.*

3.05 MAINTENANCE

- A. *The entire sprinkler irrigation system shall be under fully automatic operation for a period of seven days prior to any planting.*
- B. *The Agency's Authorized Representative reserves the right to waive or shorten the operation period.*
- C. *After the maintenance period, the Contractor shall demonstrate in the presence of the Agency's Authorized Representative the system is in perfect operating order.*

3.06 CLEAN-UP

- A. *Clean-up shall be performed as each portion of the work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be washed down, and any damage sustained to the work of others shall be repaired and work of others shall be repaired, and work returned to its original condition.*

3.07 OPERATING INSTRUCTIONS

- A. *The Contractor shall be required to train Agency's maintenance personnel in proper operation of all major equipment. Provide written evidence of the person or persons so trained to the Agency's Authorized Representative.*

3.08 EXISTING TREES

- A. *When it is necessary to excavate adjacent to existing trees, use all possible care to avoid injury to tree trunk, branches and tree roots. Excavation in areas where two (2) inch and larger roots occur shall be done by hand. All roots two (2) inches and larger in diameter shall be tunneled under and shall be heavily wrapped with burlap, to prevent scarring or excessive drying. Where a ditching machine is run close to trees having roots smaller than two (2) inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making clean cuts. Roots one (1) inch and larger in diameter shall be painted with two (2) coats of Tree Seal, or approved equivalent. Trenches adjacent to tree should be backfilled within twenty-four (24) hours. Where this is not possible, the side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.*

END OF IRRIGATION SYSTEM SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related Requirement: Review the General Conditions, Standard Specifications, Special Provisions, and the City of Fontana Park Design Standards which contain information and requirements that apply to this Section.

a. Refer to the City Of Fontana Park Design Standards Manual. Please contact City of Fontana's Public Works Department's Landscape Division for the current up to date information as it pertains to your project.

Public Works Department Contact Info: Luis Villalobos at 909-350-6776 or lvillalobos@fontana.org

B. Work Included: Provide site and street furnishings complete, as shown, and as specified.

C. Related Work in Other Sections:

1.02 QUALITY ASSURANCE

A. Applicable Standards: Any reference to the "Standard Specifications" or "ASTM" shall mean the current or latest editions as described below:

1. "Standard Specifications" - "Standard Specifications for Public Works Construction": 2015 Edition; Southern California Chapter, American Public Works Association and Southern California Districts Associated General Contractors of California.

2. "ASTM" - American Society for Testing and Materials

B. Compatibility With Adjacent Materials: Verify that all site furnishings are compatible with adjacent site improvements by others, and that their installation shall not adversely affect either the site furnishings of existing or proposed site improvements.

1.03 SUBMITTALS

A. Samples and Product Data: Submit samples or manufacturer's current literature for the following items:

1. Color and finish for each type of furnishing.

2. Installation instructions and recommendations for general maintenance.

- B. Test Data: Copies of all applicable laboratory test data and reports.
- C. Shop Drawings: All site furnishings being installed or fabricated by Contractor.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Labeling: Furnish all materials in manufacturer's unopened, original containers, bearing original labels showing quantity, description and name of manufacturer.
- B. Delivery: Deliver and unload at the site on pallets and bound in such a manner that no damage occurs to the product.
- C. Storage: Store products in a manner which will preclude all damages. Damaged materials will be rejected. Remove all damaged materials from the job site immediately and replace at no cost to the Agency.
- D. Handling: Furnish suitable equipment to locate all site furnishing materials carefully and efficiently. Lift materials using lifting inserts provided by manufacturer where applicable.

PART 2 - PRODUCTS

2.01 PREFABRICATED MATERIALS

- A. Refer to the City of Fontana Park Design Standards Manual. Please contact City of Fontana's Public Works Department's Landscape Division for the current up to date information as it pertains to your project.

Public Works Department Contact Info: Luis Villalobos at 909-350-6776
Lvillalobos@fontana.org

PART 3 - EXECUTION

3.01 GENERAL

- A. Acceptance: Do not install site and street furnishings prior to acceptance by Agency's Authorized Representative of area to receive such materials.
- B. Locations: Install as directed and as shown on the Drawings.
- C. Special Precautions: Guard against staining or damaging of existing pavements and plantings where site furnishings are to be installed.

3.02 CONCRETE PADS AND FOOTINGS

- A. Layout: Accurately layout all pads and footings as called for in the Drawings.
- B. Installation: Excavation form as required and fill for pads and footings as specified

3.03 CLEAN-UP

- A. Keep all areas of work clean, neat and orderly at all times.
- B. Clean up and remove all debris from the entire work area to satisfaction of Agency's Authorized Representative prior to Final Acceptance.

END OF SITE AND STREET FURNISHINGS SECTION

PART 1 – GENERAL**1.01 DESCRIPTION**

- A. Related Requirements: Review the General Conditions, Standard Specifications and Special Provisions, which contain information and requirements that apply to this Section.
- B. Work Included: Provide all products and execute all labor to achieve soil preparation, complete as shown and as specified.
- C. Related Work in Other Sections: Irrigation System - Section 02810
Lawns and Grasses - Section 02930
Trees, Shrubs, and Ground Covers - Section 02950
Landscape Maintenance - Section 02970

1.02 QUALITY ASSURANCE

- A. Applicable Standards: General Conditions, Special Provisions,
- B. Provide certificates of inspection required by law for transportation with invoice. File copies of certificates with Agency's Authorized Representative after acceptance of material. Inspection by governmental officials at point of origin does not preclude rejection of materials at project site.

1.03 SUBMITTALS**SOILS MANAGEMENT PLAN REQUIREMENTS:**

1. IN ORDER TO REDUCE RUNOFF AND ENCOURAGE HEALTHY PLANT GROWTH, A SOIL MANAGEMENT REPORT SHALL BE COMPLETED BY THE PROJECT APPLICANT, OR HIS/HER DESIGNEE, AS FOLLOWS:
 - A. SUBMIT SOIL SAMPLES TO A LABORATORY FOR ANALYSIS AND RECOMMENDATIONS.
 - B. SOIL SAMPLING SHALL BE CONDUCTED IN ACCORDANCE WITH LABORATORY PROTOCOL, INCLUDING PROTOCOLS REGARDING ADEQUATE SAMPLING DEPTH FOR THE INTENDED PLANTS.

2. *THE SOIL ANALYSIS SHALL INCLUDE:*

- A. *SOIL TEXTURE*
- B. *INFILTRATION RATE DETERMINED BY LABORATORY TEST OR SOIL TEXTURE INFILTRATION RATE TABLE*
- C. *PH*
- D. *TOTAL SOLUBLE SALTS*
- E. *SODIUM*
- F. *PERCENT ORGANIC MATTER*
- G. *AND RECOMMENDATIONS.*

3. *IN PROJECTS WITH MULTIPLE LANDSCAPE INSTALLATIONS (I.E. PRODUCTION HOME DEVELOPMENTS) A SOIL SAMPLING RATE OF 1 IN 7 LOTS OR APPROXIMATELY 15% WILL SATISFY THIS REQUIREMENT. LARGE LANDSCAPE PROJECTS SHALL SAMPLE AT A RATE EQUIVALENT TO 1 IN 7 LOTS.*

4. *THE PROJECT APPLICANT, OR HIS/HER DESIGNEE, SHALL COMPLY WITH ONE OF THE FOLLOWING:*

- A. *IF SIGNIFICANT MASS GRADING IS NOT PLANNED, THE SOIL ANALYSIS REPORT SHALL BE SUBMITTED TO THE CITY AS PART OF THE LANDSCAPE DOCUMENTATION PACKAGE*
- B. *OR IF SIGNIFICANT MASS GRADING IS PLANNED, THE SOIL MANAGEMENT REPORT SHALL BE MADE AVAILABLE TO THE CITY INSPECTOR DESIGNATED BY THE CITY ENGINEER, AND TO THE LANDSCAPE CONTRACTOR PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL, AND SUBMITTED WITH THE CERTIFICATE OF COMPLETION*

5. *Samples and Product Data: Prior to delivery to site, submit samples and manufacturer's literature to the Agency Authorized Representative for the following items:*

- 1. *Organic Amendments: One (1) pint for each type*
- 2. *Topsoil: One-half (2) pound*
- 3. *Soil Mixes: One-half (2) pound for each type*
- 4. *Sand: One-half (2) pound*
- 5. *Chemical Additives: One (1) pint for each type*

B. *Test Data: Submit all laboratory test data for all materials.*

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Labeling: Furnish standard products in unopened manufacturer's standard containers bearing original labels showing quantity, analysis and name of manufacturer.
- B. Storage: Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product.

1.05 ANALYSES OF SAMPLES AND TESTS

- A. Sampling: Agency's Authorized Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time. Furnish samples upon request by Agency's Authorized Representative.
- B. Rejected Materials: Remove rejected materials immediately from the site at Contractor's expense.
- C. Testing: Pay cost of testing of materials not meeting specifications.

1.06 PRE-PLANT REVIEW

- A. Acceptance: Work will be accepted by the Agency's Authorized Representative upon satisfactory completion of all soil preparation work.
- B. Notification: Notify Agency's Authorized Representative forty-eight (48) hours in advance for review of soil preparation prior to proceeding with planting operations.

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. General Qualifications: Soil Preparation
 - 1. Prior to planting **compacted** soil SHALL be transformed to a friable condition
 - 2. In addition to the required soil amendments Install Compost at a minimum rate of four cubic yards per 1,000 square feet of permeable area SHALL be incorporated to a depth of 6 inches into soil

3. Composition: Use only fertile, friable, well-drained soil, of uniform quality, free of stones over 1 in. diameter, sticks, oils, chemicals, plaster, concrete and other deleterious materials, as a planting medium for the project and as per the Public Works Inspectors direction.
4. Testing:
 - a. Parasites: Test all soils which have been previously used for agriculture forenmatodes. It shall be acceptable if the parasites nematode population is less than two hundred (200) per five (5) cubic centimeters of soil. Do not artificially dry soil prior to testing.
 - b. Herbicide: Perform a radish/ryegrass growth trial if herbicide contamination is suspected. Consult with Agency's Authorized Representative prior to testing.
- B. Existing Soil to be Amended: Inspect existing soil and do all work necessary to bring it to standards specified under "General Qualifications" above. Amend as specified herein.

2.02 ORGANIC AMENDMENTS

- A. Nitrogen-Treated Sawdust: Derived from redwood, fir, or cedar sawdust.

1. Physical Properties:

| <u>Percent Passing</u> | <u>Sieve Size</u> |
|------------------------|----------------------------|
| 95-100 | 6.35 mm (1/4") |
| 80-100 | 2.38 mm (#8, * mesh) 0-30 |
| | 500 microns (#35, 32 mesh) |

2. Chemical Properties:

Nitrogen Content (dry weight basis):

Wood of Redwood - 0.4-0.6%

Wood of Fir/Cedar - 0.56-0.84% Iron

Content (dry weight basis):

Minimum 0.08% iron as metallic

Soluble Salts: Maximum 3.5 milliohms/am twenty-five (25) degrees Celsius as determined by saturation extract method. Ash (dry weight basis): 0.6.0%

3. Wettability:

- a. *The air-dry product shall, when applied to a cup or smaller beaker of water at seventy (70) degrees Fahrenheit in the amount of 1 teaspoon, become completely wet in a period not exceeding two (2) minutes.*
- b. *Guarantee all wetting agents added to accomplish this to be nonphytotoxic at rate used.*

2.03 COMMERCIAL FERTILIZERS

- A. Pre-Plant Fertilizer: *Mixed by a commercial fertilizer supplier and consisting of the following percent by weight:*

| | |
|----------------------------|-------------------|
| <i>Six (6) Percent</i> | <i>Nitrogen</i> |
| <i>Twenty (20) Percent</i> | <i>Phosphorus</i> |
| <i>Twenty (20) Percent</i> | <i>Potash</i> |

2.04 CHEMICAL ADDITIVES

- A. Ground Limestone: *Agricultural limestone containing not less than eighty-five (85) percent of total carbonates, ground to such fineness that fifty (50) percent will pass #100 sieve and ninety (90) percent will pass #20 sieve.*
- B. Dolomite Line: *Agricultural grade mineral soil conditioner containing thirty-five (35) percent minimum magnesium carbonate and forty-nine (49) percent minimum calcium carbonate, one hundred (100) percent passing \$65 sieve. "Kaiser Dolomite 65 AG" as manufactured by Kaiser, Inc., Mineral Products Department, or equal.*
- C. Gypsum: *Agricultural grade product containing eighty (80) percent minimum calcium sulfate.*
- D. Iron Sulfate: *(Ferric or Ferrous): Supplied by a commercial fertilizer supplier, containing twenty (20) percent to thirty (30) percent iron and thirty-five (35) percent to forty (40) percent sulphur.*
- E. Sulfate of Potash: *Agricultural grade containing (50) percent to fifty-three percent of water-soluble potash.*
- F. Single Superphosphate: *Commercial product containing approximately twenty (20) percent to twenty-five (25) percent available phosphoric acid*

- G. Ammonium Sulfate: Commercial product containing approximately twenty-one (21) percent ammonia.
- H. Ammonium Nitrate: Commercial product containing approximately thirty-four (34) percent ammonia.
- I. Calcium Nitrate: Agricultural grade containing fifteen and one-half (15-1/2) percent nitrogen.
- J. Urea Formaldehyde: Granular commercial product containing thirty-eight (38) percent nitrogen.
- K. I.B.D.U. (iso Butyldiene Diurea): Commercial product containing thirty-one (31) percent nitrogen.
- L. Soil Sulfur: Agricultural grade sulfur containing a minimum of ninety-six (96) percent sulfur.
- M. Iron Sequestrene: Geigy Iron Sequestrene 330 Fe.

2.05 WATER

- A. Clean, fresh and potable, furnished and paid for by the **contractor** until Final City Acceptance. Applications must be filled out with the subsequent water company within the project area.

PART 3 - EXECUTION

3.01 SOIL PREPARATION A.

General:

- 1. Moisture Content: Do not work soil when moisture content is so dry that dust will form in air that clods will not break readily. Apply water, if necessary, to bring soil to an optimum moisture content of tilling and planting.
- B. Preparation of Existing Soil:
 - 1. Verification of Existing Grades: Verify that grades are within plus or minus one tenth of one foot of the required finished grades. Report all variations immediately to the Agency's Authorized Representative.
 - 2. Prior to planting **compacted** soil SHALL be transformed to a friable condition

3. **Install Compost at a minimum rate of four cubic yards per 1,000 square feet of permeable area SHALL be incorporated to a depth of 6 inches into soil**
4. **Cultivation:** Rip or cultivate all planting areas to a depth of six (6) inches immediately prior to amending existing soil, except for slope areas 2:1 or greater.
5. **Cleaning of Debris:** After installing trees, shrubs and finish grading, but prior to the installation of the turf clear areas of stones $\frac{3}{4}$ " inches diameter and larger from the surface. Also, remove all weeds, debris and other extraneous materials prior to amending existing soil.
6. **Trees to Remain:** Hand cultivate within the drip line of existing trees to remain. Depth of cultivation shall not exceed two (2) inches. Cultivate immediately prior to amending existing soil.
7. All rocks and debris generated in the preparation of soil shall be disposed of in a legal manor by the contractor at the contractor's expense.

3.02 SOIL CONDITIONING

- A. **Amending of Existing Soil (all areas less than 2:1 slopes):**
 1. Prior to planting **compacted** soil SHALL be transformed to a friable condition
 2. **Install on all projects Compost at a minimum rate of four cubic yards per 1,000 square feet of permeable area SHALL be incorporated to a depth of 6 inches into soil**
 3. **Areas to Receive Hydro seeding:** Delete pre-plant fertilizer.
 4. **Incorporation of Amendments:** Incorporate thoroughly within top six (6) inches of soil layer and bring amended soil to finish grades and elevation shown on drawings. Do not work soils under muddy conditions.
- B. **Backfill Mix for On-Grade Plant Pits:**
 1. **Composition:**

Sixty (60) percent Native Soil excavated from plant pit

Forty (40) percent Nitrogen-treated sawdust

One (1) lb. 12-12-12 cubic yard of mix

Two (2) lbs. Iron Sulfate per cubic yard of mix

One (1) lb. Urea Formaldehyde per cubic yard of mix

2. Intent: The above amendments and quantities are approximate and are for bidding purposes only. Following on site topsoil analysis for agricultural suitability (paid for by Contractor) by an approved Soils and Plant Laboratory, composition of amendments may change. Contract price will be adjusted accordingly.

3.03 DRAINAGE OF PLANTING AREAS

A. Surface Drainage: All planting areas shall have positive drainage towards drains and/or street curbs. Contractor shall verify that no standing water will occur. B. Detrimental Drainage, Soils, and Obstructions:

1. Notification: Submit in writing all soils or drainage conditions considered detrimental to growth of plant materials. State condition and proposal and cost estimate for correcting condition.
2. Correction: Submit for acceptance a written proposal and cost estimate for the correction before proceeding with work.

3.04 CLEAN-UP

- A. Keep all areas of work, clean, neat and orderly at all times.
- B. Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance to the satisfaction of the Agency's Authorized Representative.

END OF SOIL PREPERATION SECTION

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. Related Requirements: Review the General Conditions, Standard Specifications and Special Provisions, which contain information and requirements that apply to this Section.
- B. Work Included: Provide lawns, complete as shown on drawings and as specified.
- C. Turf in parkways must be irrigated by subsurface drip or technology that produces no overspray or runoff
- D. No turf where slope is greater than 25% (1 to 4-foot change)
- E. Related Work in Other Sections: Irrigation System - Section 02810
Soil Preparation - Section 02920
Trees, Shrubs, and Ground Covers - Section 02950
Landscape Maintenance - Section 02970

1.02 QUALITY ASSURANCE

- A. Certificates of Inspection: Provide as required by law for transportation of each shipment of seed along with invoice. Submit copies of certificates after acceptance of material. Inspection by Federal or State Governments at place of growth does not preclude rejection at proper site.
- B. Applicable Standards: Apply standards for seed and sod as described in the following:
 - 1. General Conditions, Special Provisions, Exhibit "A" and Appendix 1.
 - 2. Hortus III - Latest edition, Bailey Hortorium, Cornell University.

1.03 SUBMITTALS

- A. Samples and Product Data: Submit samples and manufacturer's literature for the following items:
 - 1. Seed Mix (es): One half (2) pound for each type.
 - 2. Mulch: One half (2) pound
 - 3. Soil Stabilizer: One half (2) pound
 - 4. Mulch and Soil Stabilizer: One half (2) pound
- B. Test Data: Submit all laboratory test data for all materials.
 - 1. Seed Varieties: Guaranteed statement of composition, mixture and percentage of purity and germination of each variety.

1.04 WORK SCHEDULE

- A. Proceed with the work as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.

1.05 SELECTION AND ORDERING OF PLANT MATERIAL

- A. Documentation: Submit documentation within fifteen (15) days after award of contract that all seed has been ordered.
- B. Unavailable Materials: If proof is submitted that any seed specified is not obtainable, a proposal will be considered for use of the nearest equivalent variety with corresponding adjustment Contract price. Substantiate such proof in writing no later than fifteen (15) days after award of contract.
- C. Special Conditions: The above provisions shall not relieve contractor of the responsibility for obtaining specified seed in advance if special growing conditions or other arrangements must be made in order to supply specified materials.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Seed:
 - 1. Delivery: Furnish standard seed in unopened manufacturer's standard containers bearing original certification labels showing quantity, analysis and name of manufacturer.
 - 2. Storage: Store seed with protection from weather or other conditions which would damage or impair the effectiveness of the project.
- B. Mulch: Store with protection from weather or other conditions which would damage or impair the effectiveness of the product.

1.07 ANALYSES OF SAMPLES AND TESTS

- A. Samples: Agency's Authorized Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time.
- B. Rejected Materials: Remove rejected materials immediately from the site at Contractor's expense. Pay cost of testing of materials not meeting specifications.

1.08 MAINTENANCE PERIOD AND FINAL ACCEPTANCE

- A. See Section 02970 - Landscape Maintenance.

PART 2 - PRODUCTS

2.01 LAWN SEED

- A. Composition: Fresh, clean, certified, new crop seed of the following varieties mixed in the proportions as shown:

| | | |
|--------------------|-----|----------------------------------|
| <u>Marathon II</u> | or | <u>Triple Crown Dwarf</u> |
| Marathon | 52% | Empress Dwarf 34% or equal |
| Mustang | 22% | Pixie Dwarf 33% or equal |
| Rebel 11% | | Pixie Dwarf 33% or equal Olympic |
| 15% | | El Dorado Dwarf 33% or equal |

Or equal approved by Agency's Authorized Representative.
- B. Weed Seed: Do not exceed twenty-five one hundredths percent (0.25%).

2.02 ORGANIC AMENDMENTS:

- A. See Section 02920 - Soil Preparation

2.03 TOP-DRESS FERTILIZER

- A. Complete fertilizer, fifty (50) percent of the nitrogen to be derived from natural organic sources or urea-form. Available phosphoric acid shall be from superphosphate, bone or tankage. Potash shall be derived from muriate of potash containing sixty (60) percent potash:

Sixteen (16) percent Nitrogen

Six (6) percent Phosphorus

Eight (8) percent Potash

2.04 HYDROSEED MULCH

A. General:

1. Composition: *Green-colored, fibrous, virgin wood cellulose mulch containing no growth or germination-inhibiting factors.*
2. Dispersion in Slurry: *Mulch shall be manufactured in such manner that after addition to and agitation in slurry tanks with fertilizer, seed, water and other approved additives, fibers in the material will become uniformly suspended to form a homogeneous slurry.*
3. Absorption Capacity: *When hydraulically sprayed on the ground, the material will form a blotter-like ground cover impregnated uniformly with seed which will allow the absorption of moisture and allow rainfall to percolate to the underlying soil.*

B. Specifications:

1. Weight: *Weight Specifications of this material from suppliers, and for all applications, shall refer only to air dry weight of the fiber material. Absolute air-dry weight is based on the normal standards of the Technical Association of the Pulp and Paper Industry for wood cellulose and is considered equivalent to ten (10) percent moisture.*
2. Labeling: *Each package of the cellulose fiber shall be marked by the manufacturer to show the air-dry weight content.*

2.05 SOIL STABILIZER

- A. Composition: *Totally organic substance, supplied in power form and at least 90% of which is ninety-two (92) percent pure muciloid derived from ground plantago ovata-insularis husks. Stabilizer shall be water-soluble, non- toxic hydrophilic and shall not inhibit germination.*
- B. Product: *"Ecology Controls M-binder" as distributed by Stover Company, Los Angeles, CA, or equal approved by Agency's Authorized Representative.*

2.06 HYDRAULIC EQUIPMENT FOR HYDROSEEDING

- A. Mixer: *Use a commercial type hydro-seeder for the application of slurry. Equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend and homogeneously mix slurry.*

- B. Distribution Lines: Large enough to prevent stoppage and to provide even distribution of the slurry over the ground.
- C. Pump Capacity: One hundred fifty (150) psi at the nozzle.
- D. Slurry Tank: Minimum capacity of one thousand (1,000) gallons shall be mounted on a traveling unit which will place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded so as to provide uniform distribution without waste.

2.07 WATER

- A. Potable water is furnished by the Contractor. Transport as required.

2.08 HYDROSEEDING MIX PER ACRE

- A. Lawn Areas: Marathon II, Triple Crown Dwarf or equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Areas to Receive Hydro seeding: All turf areas.

3.02 SOIL PREPARATION

- A. Refer to Soil Preparation - Section 02920/

3.03 HYDROSEEDDED LAWN

- A. Turf Area Preparation: Culti-pak or roll all hydro seeded turf areas prior to hydro seeding so as to settle soil. Re-grade low areas and re-roll.
- B: Weed Abatement Prior to Hydro seeding Lawn: Begin watering immediately to activate fertilizer and chemicals.
 1. Water all areas thoroughly and uniformly. Continue watering at the frequency and duration necessary to germinate all residual weed seeds, and as directed by the Agency's Authorized Representative.
 2. Unless otherwise directed, maintain watering for not less than three (3) weeks.

3. *If perennial weed appear, apply approved contact herbicide over affected areas. Apply in accord with manufacturer's instructions.*
4. *If annual weeds appear, apply approved contact herbicide over affected areas. Apply in accord with manufacturer's instructions.*
5. *Do not water affected areas for a period of four (4) days minimum, following application of contact herbicides.*
6. *Follow manufacturer's instructions relating to time required for chemicals to effectively destroy weed growth.*
7. *Resume watering and continue for a period of three (3) weeks.*
 - a. *A shorter watering period may be permitted by the Agency's Authorized Representative, as determined by project conditions.*
8. *Discontinue watering for one (1) day prior to second application of herbicide spraying.*
 - a. *Reapply straight contact weed killer in accord with manufacturer's instructions.*
 - b. *Do not water treated areas for a period of four (4) days minimum following application of herbicide.*
9. *Remove all desiccated weeds from the slopes to the finish grade.*
10. *Water planting areas thoroughly and continuously for three (3) consecutive days. Saturate upper soil layers.*
11. *Allow soil surface to dry for one (1) day immediately prior to hydro seeding.*
 - a. *Exercise care not to allow the soil surface to become over-saturated with water prior to hydro seeding; do not permit soil to become bone dry.*
 - b. *The top quarter (1/4) inch of soil surface shall show evidence of residual moisture at time of hydro seeding.*
 - c. *Preparation: Do all slurry preparation at the job site.*

C: *Water:* Add water to tank when the engine is at half throttle. When the water level has reached the height of the agitator shaft, establish good recirculation and add seed.

D: *Seed:* Do not allow seed to remain more than thirty (30) minutes in slurry.

E: *Fertilizer:* Add fertilizer, followed by the mulch. The mulch shall only be added to the mixture after the seed, and when the tank is at least one third (1/3) filled with water.

F: Mixing: Open the engine throttle to full speed when the tank is half-filled with water. Add all the mulch by the time the tank is two-thirds (2/3) to three-fourths (3/4) full. Commence spraying immediately when the tank is full.

G: Application:

- 1. General: Apply specified slurry mix in a sweeping rate. Keep hydro seeding within designated areas and keep from contact with other plant materials.*
- 2. Unused Mix: Do not use slurry mixture which has not been applied within four (4) hours of mixing. Promptly remove from the site.*
- 3. Protection: After application, do not operate any equipment over the hydro seeded areas.*
- 4. Reseeding: Reseed all areas and parts of areas which fail to show a uniform stand of lawn until areas are covered with a satisfactory stand of lawn.*

3.04 CLEAN-UP

- A. General: Keep all areas of work clean, neat and orderly at all times. Keep all paved areas clean during planting operations.*
- B. Overspray: Immediately after application, thoroughly wash off any plant materials, planting areas, or paved areas not intended to receive slurry mix.*
- C. Debris: Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance.*

END OF LAWNS AND GRASSES SECTION

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. Related Requirements: Review the General Conditions, Standard Specifications and Special Provisions, City Of Fontana Online Tree Policy Manual, which contain information and requirements that apply to this section.
- B. Work Included: Provide planting of trees, shrubs, and ground covers, complete as shown and specified.
- C. Related Work in Other Sections: Irrigation System - Section 02810
Soil Preparation - Section 02920
Lawns and Grasses - Section 02930
Landscape Maintenance - Section 02970

1.02 QUALITY ASSURANCE

- A. Certificates:
 - 1. Provide certificates of inspection required by law for transportation of each shipment of plants along with invoice.
 - 2. File copies of certificates after acceptance of material. Inspection by Federal or State Government at place of growth does not preclude rejection of plants at project site.
- B. Applicable Standards: Apply standards for plant materials as described in the following:
 - 1. General Conditions, Special Provisions, Exhibit "A" and Appendix 1.
 - 2. "American Standard for Nursery Stock", latest edition, American Association of Nurseryman, Inc.
 - 3. Hortus III - Latest edition, Bailey Hortorium, Cornell University.

1.03 SUBMITTALS

- A. Samples and Product Data: Prior to delivery to site, submit samples and manufacturer's current literature for the following items:
 - 1. Tree and Shrub Planting Fertilizer: Four (4) tablets each.
 - 2. Mulch: One (1) pint
- B. Test Data: Submit all laboratory test data for all materials.
 - 1. Mulch: One (1) pint

1.04 WORK SCHEDULE

- A. Proceed with the work as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.

1.05 SELECTION, TAGGING AND ORDERING OF PLANT MATERIAL

- A. Documentation: Submit documentation within fifteen (15) days after award of Contract that all plant materials have been ordered. Arrange procedure for review of plant materials at time of submission.
- B. Review: Submit a written list and request for review of tagged plant materials and quantity at place of growth at least ten (10) working days prior to shipment to site. Agency's Authorized Representative reserves the right to refuse review at this time, if, in his judgment, a sufficient quantity of plants is not available.
- C. Transportation: Contractor shall provide transportation for review of plant materials from Agency's Authorized Representative's Office to the nursery. The Agency's Authorized Representative will review the tagged plants at place of growth and upon delivery for conformity to specifications.
- D. Distant Material: Submit photographs with a person adjacent to plants for preliminary review. Such review shall not impair the right of review and rejection during the progress of the work.
- E. Unavailable Material: If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size of variety with corresponding adjustment of contract price. Substantiate such proof in writing no later than fifteen (15) days after award of contract.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Labeling: Furnish standard products in manufacturer's standard containers bearing original labels legibly showing quantity, analysis, genus/species and name of manufacturer/grower.
- B. Storage: Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product. Protect metal containers from sun during summer months with temperatures above eighty (80) degrees Fahrenheit.
- C. Handling: Do not lift or handle container plants by tops, stems or trunks at any time. Do not bind or handle plants with wire or rope at any time.
- D. Anti-Desiccant: At Contractor's option, spray all evergreen or deciduous plant material in full leaf immediately before transporting with anti-desiccant. Apply an adequate film over trunks, branches, twigs and foliage.

1.07 ANALYSES OF SAMPLES AND TESTS

- A. Sampling: Agency's Authorized Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time. Furnish samples upon request.
- B. Rejected Materials: Remove rejected materials immediately from the site at Contractor's expense. Pay cost of testing of materials not meeting specifications.

PART 2 - PRODUCTS

2.01 PLANT MATERIALS

- A. General:
 - 1. Growing Conditions: Plants shall be nursery-grown in accordance with good horticultural practices under climatic conditions similar to those or project for at least two years unless otherwise specifically authorized by the Agency's Authorized Representative.
 - 2. Appearance: All plants shall be symmetrical, tightly knit, so trained or factored in development and appearance as to be superior in form, number of branches, compactness and symmetry.
 - 3. Vigor: Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pest, eggs, or larvae. They shall have healthy, well-developed root systems.

Plants shall be free from physical damage or adverse conditions which would prevent thriving growth.

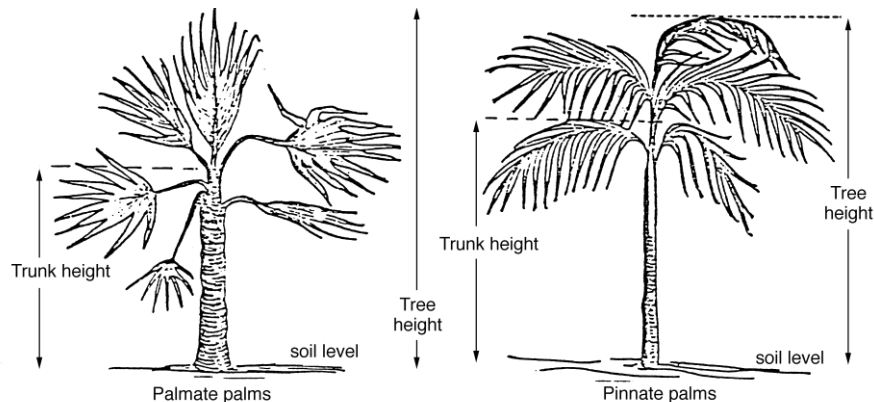
4. **Container Stock:** *Verify that all container stock has been in the containers in which they were delivered for at least six (6) months, but not over two (2) years. Samples must prove to be free of kindled, circling or girdling roots and with no evidence of a pot-bound condition. Do not install container plants that have cracked or broken balls of earth when taken from container.*

B. Measurements:

1. **General:** *Measure plants when branches are in their normal upright position. Height and spread dimensions specified refer to main body of plant and not branch tip to tip. Take caliper measurement at a point on the trunk six (6) inches above natural ground line for trees up to four (4) inches in caliper and at a point twelve (12) inches above the natural ground line for trees over four (4) inches in caliper.*

2. **Palm Tree Measurements**

- a. *In size grading palm trees, the specified height of the trunk itself shall take precedence. Trunk height is measured from the ground line, which should be at or near the top of the root zone, to the base of the heart leaf.*



2. **Size Range:** *If a range of size is given, do not use plant materials less than the minimum size. The measurements specified are the minimum size acceptable and are the measurements after pruning, where pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height and spread shall be rejected by the Agency's Authorized Representative.*
3. **Substitutions:** *Plants shall be true to species and variety and shall conform to measurements specified except that plants larger than specified may be used if accepted by Agency's Authorized Representative. Use of such plants*

shall not increase contract price. If larger plants are accepted, increase the ball of earth in proportion to the size of the plant.

- C. Pruning: Do not prune plants before delivery. For pruning after installation, see Section 02970 - Landscape Maintenance.
- D. Condition: Trees which have multiple leaders, unless specified, or damaged or crooked leaders, will be rejected. Trees with abrasions of the bark, sunscalds, disfiguring knots, or fresh cuts of limbs over three-quarters (3/4) inches which have not completely calloused, will be rejected by the Agency's Authorized Representative.

2.02 BACKFILL MIX FOR PLANT PITS

- A. See Section 02920 - Soil Preparation.

2.03 COMMERCIAL FERTILIZERS

- A. Top-dress Fertilizer: Complete fertilizer, fifty (50) percent of the nitrogen to be derived from natural organic sources or urea-form. Available phosphoric acid shall be from super phosphate, bone or tankage. Potash shall be derived from muriate of potash containing sixty (60) percent potash:

Sixteen (16) percent Nitrogen

Six (6) percent Phosphorus

Eight (8) percent Potash
- B. Tree and Shrub Planting Fertilizer: "Agriform" twenty-one (21) gram tablets with 20-10-5 (N-P-K) Formula as manufactured by Sierra Chemical Co., Milpitas, California, (408) 263-8080, or equal approved by Agency's Authorized Representative.

2.04 STAKING MATERIALS

- A. Tree Stakes: Lodge pole Pine two (2) inch diameter; ten (10) feet long) with ten (10) inches. Tapered driving point and chamfered top, treated with copper naphthanate or pentachlorophenol to heartwood, green color, as manufactured by C & E Lumber Company, Pomona, CA. Tel. (909) 626-3591, or equal approved by Agency's Authorized Representative.
- B. Ties: Wonder tree-tie or other tie as accepted by Agency's Authorized Representative.

2.05 GUYING MATERIALS

- A. Dead Men: Cedar or redwood, with one (1) three-quarter (3/4) inch x four (4) inch galvanized eyebolt centered and secured on its side; screw-type galvanized steel ground anchor, or Universal ground anchors, as manufactured by Laconia Malleable Iron Company, Laconia, New Hampshire.
- B. Hardware:
 - 1. Guying Cable: 1 x 19 Air cord, size as specified.
 - 2. Turnbuckles: Galvanized or dip-painted and weld less.
 - 3. Cable Clamps: Galvanized or copper, size as required.
 - 4. Plastic Guy Covers: One half (2) inch diameter x four (4) to five (5) foot long white PVC SCH. 40 piping.

2.06 ROOT BARRIERS

- A. Barriers to deflect tree roots downward shall be installed when the tree is planted within five (5) feet of City improvements (i.e. sidewalks, curb & gutter, storm drain structures, wall structures...).
- B. Root barriers shall be Deep Root Corp. or equal.

2.07 WATER

- A. Clean, fresh and potable, furnish and paid for by the contractor until Final City acceptance.
- B. Transport required.

2.08 ANTI-DESICCANT

- A. Anti-desiccants for retarding excessive loss of plant moisture and inhibiting wilt shall be spray able, water insoluble vinyl-vinylidene complex which will produce a moisture retarding barrier not removable by rain.
- B. Wilt-proof Formula NCF as manufactured by Nursery Specialty Products, Greenwich, CN. or equal approved by Agency's Authorized Representative.

PART 3 - EXECUTION

3.01 PREPLANT REVIEW

- A. General: Do not commence planting work prior to acceptance by Agency's Authorized Representative of soil preparation.

- B. Finish Grades: Finish grades for all planting areas shall have been established in another section. Verify that all grades are within one (1) inch plus or minus of required finish grade, and that all soil amendments have been installed as specified under Section on Soil Preparation.
- C. Notification: Submit written notification of all conditions inconsistent with specifications for soil preparation and mixing as described in Section 02920 - Soil Preparation.

3.02 DRAINAGE OF PLANTING AREAS

- A. Surface Drainage: Maintain positive surface drainage of planted areas as established under Section 300-11 Finish and Rough Grading.
- B. Discrepancies: Submit in writing, all discrepancies in the Drawings or Specifications, obstructions on the site, or prior work done by others, which Contractor feels precludes maintaining proper drainage; include description of all work required for correction or relief of said discrepancies. C. Detrimental Drainage, Soils and Obstructions:
 - 1. Notification: Supply written notification of all conditions detrimental to growth of plant material. State condition and submit proposal and cost estimate for correcting condition.
 - 2. Testing: Test drainage of five (5) plant beds and pits identified in field by Agency's Authorized Representative by filling with water twice in succession. Notify Agency's Authorized Representative of conditions where retention of water in planting beds occurs for more than twenty-four (24) hours.
 - 3. Correction: Submit for acceptance a written proposal and cost estimate for the correction before proceeding with work.

3.03 LAYOUT AND EXCAVATION OF PLANTING AREAS

- A. Layout and Staking: Lay out plants at locations shown on Drawings. Stake each tree location with lath, color coded for each species. Outline shrub and ground cover beds with lime. Agency's Authorized Representative will check location of plants in the field and shall adjust to exact position before planting begins. Agency's Authorized Representative reserves the right to refuse review at this time, if in his opinion, a sufficient quantity of plants is not available.

- B. Plant Pits: Excavate container-grown tree, shrub, and vine pits to the following dimensions:

| | <u>Width</u> | <u>Depth</u> |
|------------------|------------------------|---|
| Boxed Trees | | Two (2) times box width One Times Box Height |
| Container Trees | Two (2) times diameter | One Times Container Height |
| Container Shrubs | Two (2) times diameter | One Times Container Height |

3.04 PLANTING OPERATIONS

- A. General:

1. Protect plants at all times from sun or drying winds.
2. Keep plants that cannot be planted immediately upon delivery in the shade, well-protected and well-watered.

- B. Handling of Plant Materials:

1. Remove container stock carefully after containers have been cut on two sides with accepted cutter. Do not use spade to cut containers.

- C. Installation:

1. Positioning: After removing plant from container, scarify side of root ball to prevent root-bound condition and position plant in planting pit.
2. Backfilling: Use backfill mix to backfill plant pits. Set each plant plumb and brace rigidly in position until planting soil has been tamped solidly around the ball and roots. When plant pits have been backfilled approximately two-thirds (2/3) full, water thoroughly and saturate root ball, before installing remainder of the backfill mix to top of pit, eliminating all air pockets.
3. Staking and/or Guying: Stake or guy as outlined in Section 3.05 below.
4. Fertilizer Tablets: Place evenly distributed in plant pits when backfilled two-thirds (2/3) to finish grade according to the following schedule.

Fifteen (15) gallon can - Three (3) tablets

- D. Adjustment: Adjust plants to that after full settlement has occurred, the natural grade at the base of the plants is one (1) inch above the adjacent planting finish grade.
- E. Watering Basin: Form saucer with four (4) inches high berm centered around tree and shrub pits twelve (12) inches wider than ball diameter. Do not form saucer around trees in lawn areas.
- F. Watering: Water all plants immediately after planting.
- G. Labels: Remove all nursery-type plant labels from plants.

3.05 STAKING AND GUYING

- A. General:
 - 1. Trees shall be able to stand upright without support, and shall return to the vertical after their tops have been deflected horizontally and released. Stake or guy trees which do not meet this qualification. All plant materials shall remain plumb and straight for all given conditions from installation through the guarantee period.
 - 2. Use either staking or guying method per planting details and planting legend.
- B. Staking:
 - 1. Locate stakes in a line with trunk of tree, perpendicular to prevailing wind, and as close to the main trunk is practical, avoiding root injury. Drive stakes at least thirty (30) inches into firm ground.
 - 2. Remove tree from nursery-supplied stake and tie to new stakes using four (4) accepted tree ties. Find proper height for point of tree ties and attach as follows:
 - a. Hold trunk in one hand, pull top to one side and release. Height at which trunk will just return to upright is Base Height. Attach tree ties to trunk approximately twenty-four (24) inches above Base Height.
 - b. Nail tree ties to stakes using two (2) galvanized roofing nails at each end of tie.

C. Guying:

1. *Guy trees at points of branching with guys spaced equally around and outside perimeter of ball. Cover guys with rubber hose at points of contact with bark. Position guys at crotches and fasten to a dead man.*
2. *Install 2 x 3' or 4' or 5' SCH. 40 P.V.C. pipe or approved white coated wire.*
3. Guys: *Provide one turnbuckle for each guy. Use two (2) cable clamps at each cable connection.*

3.07 PRUNING

- A. See Section 02970 - Landscape Maintenance

3.08 GROUND COVER PLANTING

- A. Planting: *Plant ground cover plants at optimum depth for proper growth. Avoid air pockets. Equally space triangularly, at distances called for in the Drawings.*
- B. Fertilizers: *Apply top-dress fertilizer at the rate of five (5) pounds per one thousand (1,000) square feet.*
- C. Watering: *Water bed thoroughly after fertilizer application. Wash all fertilizer from leaves of plant materials.*

3.09 CLEAN-UP

- A. *Keep all areas of work clean, neat and orderly at all times.*
- B. *The contractor is responsible for all spoils created by the tree pits, including any haul off required to ensure the site is graded per plans.*
- C. *Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance.*

END OF TREES, SHRUBS, AND GROUND COVERS SECTION

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. Related Requirements: Review the General Conditions, Standard Specifications and Special Provisions, which contain information and requirements that apply to this Section.
- B. Work Included: Provide Landscape Maintenance, complete as specified.
- C. Related Work in Other Sections: Irrigation System - Section 02810
Soil Preparation - Section 02920
Lawns and Grasses - Section 02930
Trees, Shrubs, and Ground Covers - Section 02950

1.02 QUALITY ASSURANCE

- A. Applicable Standards: Apply as described in the following:
 - 1. General Conditions, Special Provisions
 - 2. Guide for Fertilizing Shade and Ornamental Trees.
 - 3. Pruning Standards for Shade Trees.
- B. Requirements of Regulatory Agencies:
 - 1. Perform all work in accordance with all applicable laws, codes and regulations required by authorities having jurisdiction over such work.
 - 2. Provide for all inspections and permits required by Federal, State, or local authorities in furnishing, transporting, and installing of all agricultural chemicals.
 - 3. The County Agricultural Commissioner's Office must by law, be given a monthly record of all herbicides, insecticides and disease control chemicals used.
- C. Work Force:
 - 1. Experience: The landscape maintenance firm shall have a full time foreman assigned to the job for the duration of the contract. He shall have a minimum of four (4) years experience in landscape maintenance

supervision, with experience or training in turf management, entomology, pest control, soils, fertilizers and plant identification. HE MUST SPEAK ENGLISH FLUENTLY.

2. *Labor Force: The landscape maintenance firm's labor force shall be thoroughly familiar and trained in the work to be accomplished and perform the task in a competent, efficient manner acceptable to the Agency.*
3. *Supervision: The foreman shall directly employ and supervise the work force at all times. Notify Agency of all changes in supervision.*
4. *Contractors employees shall wear nice clean company uniforms with proper safety equipment and provide all necessary traffic control to complete the maintenance.*

1.03 SUBMITTALS

- A. *Submit to Agency's Authorized Representative for approval, two (2) copies each of the following items:*
 1. *Schedule of maintenance operations and monthly status report including list of all equipment and materials proposed for the job.*
 2. *Written application recommendation by a licensed agricultural pest control advisor for all weed, pest and disease controls restricted by the Director of Agriculture proposed for this work.*
 3. *All licenses and insurances required by the City of Fontana, the State or Federal government pertaining to this work.*
 4. *Monthly record of all herbicides, insecticides and disease control chemicals used for the project.*

1.04 PROJECT CONDITIONS

- A. *Site Visit: At beginning of maintenance period, visit and walk the site with the Agency's representative to clarify scope of work and understand existing project/site conditions.*
- B. *Documentation of Conditions: Document general condition of existing trees, shrubs, ground covers and lawn, recording all plant materials which are damaged or dying, if any.*
- C. *Irrigation System: Document general condition of existing irrigation system, making sure that faulty electrical controllers, broken or inoperable sprinkler heads (or emitters) are reported.*

1.05 SCHEDULING

- A. *Perform all maintenance during hours mutually agreed upon between Agency and Contractor.*
- B. *Work force shall be present at the project site at least once a week and as often as necessary to perform specified maintenance in accordance with the approved maintenance schedule.*

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. *Fertilizers:*

Sierra Chemical Company

1001 Yosemite Drive

Milpitas, California 95035

(408) 263-8080

B. *Herbicides:*

Chevron Chemical Company

575 Market Street

San Francisco, California 94105

(415) 894-0880

Rhone-Poulenc Chemical Company

Agro Chemical Division

P.O. Box 125

Monmouth Junction, New Jersey 08852

(201) 297-0100

Ciba-Geigy Corporation

Agricultural Division

P.O. Box 1830

Greensboro, North Carolina 27419

(919) 292-7100

Elanco Products Company

740 S. Alabama Street

Indianapolis, Indiana 46285

(317) 261-3638

The Dow Chemical Company

P.O. Box 1706

Midland, Missouri 48640

(517) 636-0236

3M Company-Agri Chemicals Project

3M Center, Building 223-6SE

St. Paul, Minnesota 55144

(317) 261-3000

2.02 MATERIALS

- A. General: All materials and equipment, unless otherwise indicated, shall be provided by the Contractor.
- B. Water: Clean, potable and fresh, furnished and paid for by the Contractor.
- C. Fertilizers:
 - 1. Tightly compressed, slow-release and long-lasting complete fertilizer tablets bearing manufacturer's label of guaranteed analysis of chemicals present.
 - 2. Balanced, once-a-season application controlled-released fertilizers with a blend of coated pills which supply controlled-release nitrogen, phosphorus and potassium, and phosphorus.

- D. Herbicides, Insecticides, and Fungicides:
1. Obtain best quality materials with original manufacturer's containers, properly labeled with guaranteed analysis.
 2. Use non-staining materials.
- E. Lawn Seed for Reseeding: Match existing lawn mix.
- F. Replacement Tree Guys, Stakes, Ties and Wires: Match existing materials on the site.

PART 3 - EXECUTION

3.01 GENERAL

- A. Duration: Continuously maintain each plant and each portion of ground cover area after installation, during progress of work, and for a **Minimum** period of ninety (90) days after completion of all planting work until Final Acceptance by the Agency's Authorized Representative.
- B. Protection:
1. Protect all planting areas from damage of all kinds from beginning of work until Final Acceptance by the Agency's Authorized Representative.
 2. Replacement plants shall be of a size, condition and variety acceptable to Agency's Authorized Representative.

3.02 TREES AND SHRUBS

- A. Watering Basins:
1. Maintain all watering basins around plants so that enough water can be applied to establish moisture through major root zones.
 2. In rainy season, open basins to allow surface drainage away from the root crown where excess water may accumulate. Restore watering basins at end of rainy season.
 3. For supplement hand watering of watering basins, use a water wand to break the water force. Do not permit crown roots to become exposed to air through dislodging of soil and mulch.

B. Resetting: *Reset plants to proper grades or upright position.*

C. Weed Control:

1. *All areas between plants, including watering basins shall be weed free.*
2. *Use only recommended and legally approved herbicides to control weed growth.*
3. *Avoid frequent soil cultivation that destroys shallow roots and breaks the seal of pre-emergent herbicides.*

D. Pruning:

1. *Prune trees to select and develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached, and which have vertical spacing of eighteen (18) inches to forty-eight (48) inches and radial orientation so as not to overlay one another.*
2. *Prune trees to eliminate diseased or damaged growth, and narrow Vshaped branched forks that lack strength. Reduce toppling and wind damage by thinning out crowns.*
3. *Prune trees to maintain growth within space limitations, maintaining a natural appearance and balancing crown with roots.*
4. *No stripping of lower branches ("raising up") of young trees will be permitted.*
5. *Retain lower branches in a "tipped back" or pinched condition to promote caliper trunk growth (tapered trunk). Do not cut back to fewer than six buds or leaves on such branches. Only cut lower branches flush with the trunk after the tree is able to stand erect without staking or other support.*
6. *Thin out and shape evergreen trees when necessary to prevent wind and storm damage. Do primary pruning of deciduous trees during the dormant season. Do not permit any pruning of trees prone to excessive "bleeding" during growth season.*
7. *Prune damaged trees or those that constitute health or safety hazards at anytime of year as required.*
8. *Make all cuts clean and close to the trunk, without cutting into the branch collar. "Stubbing" will not be permitted. Cut smaller branches flush with trunk or lateral branch. Make larger cuts (one (1) inch in diameter or*

larger) parallel to shoulder rings, with the top edge of the cut at the trunk or lateral branch.

9. *Branches too heavy to handle shall be pre-cut in three stages to prevent splitting or peeling of bark. Make the first two (2) cuts eighteen (18) inches or more from the trunk to remove the branch. Make the third cut at the trunk to remove the resulting stub.*
10. *Do not prune or clip shrubs into balled or boxed forms unless specifically called for by design.*

E. *Staking and Guying of Trees:*

1. *Inspect stakes and guys at least one month to check for rubbing that causes bark wounds.*
2. *Conform to the recommended procedures of staking and guying as outlined in the University of California Publications AXT-311, "Staking Landscape Trees".*

3.03 GROUND COVERS

A. *Watering:*

1. *Check for moisture penetration throughout the root zone at least two (2) times a month.*
2. *Water as frequently as necessary to maintain healthy growth of ground covers.*

B. *Weed Control:*

1. *Control weeds, preferably with pre-emergent herbicides and with selective systemic herbicides.*
2. *Minimize hoeing of weeds in order to avoid plant damage.*

3.04 LAWNS

A. *Watering:*

1. *Water lawns at such frequency as weather conditions require, to replenish soil moisture to six (6) inches below root zone.*
2. *Provide a total of one and one-half (1-1/2) inches of water weekly during hot summer weather, in five (5) applications per week.*
3. *Water at night if irrigation system is electrically controlled. Otherwise watering shall be done during early mornings.*

B. Weed Control For Weed Free Lawns:

- 1. Control broad leaf weeds with selective herbicides.*
- 2. In areas where crabgrass has infested the lawn, apply a selective postemergent herbicide as soon as possible and prior to flowering.*
- 3. Apply pre-emergent herbicides such as Dacthal, Balan, or Betasan prior to crabgrass germination.*
- 4. Do not irrigate for forty-eight (48) hours after application of all herbicide sprays.*
- 5. Coordinate application of herbicides with thatch control and reseeding schedule as described below.*
- 6. Weeds are defined as any plant that is not on the approved plant pallet list or within the hydro seeding mix.*
- 7. All herbicides shall be applied by a licensed applicator per the manufacturer's instructions.*

C. Mowing and Edging:

- 1. **Contractors shall mow lawns and trim edges on a weekly basis, and provide a mowing and maintenance schedule to the inspector prior to the 90 day maintenance period beginning.***

D. Reseeding of Lawn Areas: Match existing seed mix of adjacent areas.

E. Top Dress Fertilizer:

- 1. See Section 02930 - Lawns and Grasses for type of fertilizer to be used.*
- 2. Contractor shall apply top dress fertilizer to all lawn areas in two (2) complete and separate applications during the 90-day Maintenance Period unless otherwise recommended by the fertilizer manufacturer or a certified horticulturist employed by the contractor.*
- 3. The first application shall take place no later than the end of the second week of the ninety (90) day period. The second application shall occur just prior to the end of the ninety (90) day Maintenance Period and Final Acceptance.*

3.05 INSECTS, PESTS, AND DISEASE CONTROL

- A. Inspection: *Inspect all plant materials for signs of stress, damage and potential trouble from the following:*
 - 1. *Presence of insects, moles, gophers, ground squirrels, snails and slugs in planting areas.*
 - 2. *Discolored or blotching leaves or needles.*
 - 3. *Unusually light green or yellowish green color inconsistent with normal green color of leaves.*
- B. Personnel: *Perform spraying for insect, pest and disease control only by qualified, trained personnel.*
- C. Application: *Spray with extreme care to avoid all hazards to any person or pet in the area or adjacent areas.*

3.06 IRRIGATION SYSTEM

- A. General:
 - 1. *Repair without charge to Agency all damages to system caused by Contractor's operations or vandalism. Perform all repairs within one (1) watering period.*
 - 2. *Report promptly to Agency all accidental damage not resulting from Contractor's negligence or operations.*
 - 3. *Do not run the irrigation system during rainy periods. Set and program automatic controllers for seasonal water requirements.*
- B. Cleaning and Monitoring the System:
 - 1. *Continually monitor the irrigation systems to verify that they are functioning properly as designed. Make program adjustments required by changing field conditions.*
 - 2. *Clean pump filter and strainer as often as necessary to keep the irrigation systems free of sand and other debris.*
 - 3. *Prevent spraying on windows, building walls, by balancing the throttle control on the remote-control valves and the adjustment screws on the sprinkler heads. Do not allow water to atomize and drift.*
- C. Air Blow-Out:
 - 1. *Set automatic control stations to two and one half (2-1/2) minutes timing.*

2. *Attach hose from portable air compressor to one (1) inch air inlet installed on main line at backflow preventer.*
3. *Operate compressor at one hundred (100) cubic feet per second at 60-80 PSI.*
- D. *Manual Drain Valves: Open manual drain valves located at low points on the main line to drain completely after air blow-out has been completed.*
- E. *Backflow Preventer: Rotate backflow unit at unions and open pet cocks and drain. Reverse operation and tighten unions to resume irrigation.*

3.07 THE NINETY (90) DAY MAINTENANCE PERIOD

- A. *Preliminary Review: As soon as all plantings are completed per Contract Documents, hold a preliminary review to determine the condition of the work.*
 - A1. *Schedule a meeting with the Engineering Public Works Inspector and the Public Works Maintenance Division to inspect all tree and plant depths prior to starting the 90 day Maintenance Period.*
- B. *Date of Review: Submit a written request to the Agency's Authorized Representative at least five (5) working days prior to anticipated date of review.*
- C. *Beginning of the **Minimum** Ninety (90) Day Maintenance Period: The date on which the Agency's Authorized Representative issues a letter of Preliminary Acceptance to the Contractor. By this date, all plant materials shall be planted and all areas requiring hydro seeded lawns shall be completed.*

3.08 PRE-FINAL AND FINAL ACCEPTANCE

- A. *Conditions for Pre-Final Acceptance of Work at End of Maintenance Period:*
 1. *Each plant shall be alive and thriving, showing signs of growth and no signs of stress, disease, or any other.*
 2. *All plants not meeting these conditions shall be replaced and a Ninety (90) Day Maintenance Period commenced for such plants.*
 3. *Lawn areas shall be 100% weed free unless otherwise approved by the Agency's Authorized Representative.*
 4. *Lawn areas shall have 100% germination and establishment of turf.*

B. Corrective Work:

1. *Work requiring corrective action or replacement is the judgment of the Agency's Authorized Representative and shall be performed within ten (10) calendar days after the Pre-Final Review.*
2. *Perform corrective work and materials replacement in accordance with the Drawings and Specifications and shall be made by the Contractor at no cost to the Agency.*
3. *After corrective work is completed, the Contractor shall again request a Pre-Final Review for Pre-Final Acceptance as outlined above.*
4. *Continue maintenance of all landscaped areas until such time as all corrective measures have been completed and accepted by the Agency's Authorized Representative.*

END OF LANDSCAPE MAINTENANCE SECTION

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. Related Requirements: Review the General Conditions, Standard Specifications and Special Provisions which contain information and requirements that apply to this Section.
- B. Work Included: Provide all electrical work for a complete and operable system as shown on the drawings and as specified in this section including, but not limited to the following:
1. Site investigations prior to bidding to establish existing conditions.
 2. Temporary power and lighting facilities for construction.
 3. Electrical underground service at 120/240-volt, single phase, three (3) wire service.
 4. Service metering and distribution system for lighting power connections to one hundred-twenty (120) volt irrigation controller.
 5. Lighting fixtures, mounting hardware, poles, foundations and pull boxes.
 6. Provide wire, **anti-theft** pull boxes and conduit extensions as required.
 7. Adjustment and test of the electrical work.
 8. Guarantee.
- C. Related Work in other Sections:
- Irrigation - Section 02810 (1.10 Connections to Utilities)

1.02 QUALITY ASSURANCE

- A. All products and equipment herein specified or indicated on the drawings shall be new with UL label and in accordance with the National Electrical Code, state and local codes.
- B. Applicable Standards:
1. General Conditions, Special Provisions,

1.03 SITE VISITATIONS

- A. Prior to the submission of the bid, the contractor shall visit the site and make a thorough examination of the existing conditions and thereby include allowances for this work in this bid.

1.04 PERMITS AND LICENSES

- A. *Contractor shall pay for and obtain all necessary permits, inspections, insurance and licenses required for the Electrical work.*

1.05 COORDINATION

- A. *Contractor to coordinate the electrical work with other trades. Review drawings and specifications of all equipment requiring electrical connections prior to installation of the electrical system. Verify space, ventilation and clearances required to install electrical equipment.*

1.06 SUBMITTALS

- A. *Product data sheets for meter pedestal, meter, panel board, lighting fixtures poles, wiring devices, and material list. Make all submittals at one time in booklet form.*
- B. *Record Drawings:*
 - 1. *Installation Record:* *During the course of installation, carefully show in red line on a print of the electrical system drawings all changes made to the electrical system during installation.*
 - 2. *Dimension Standards:* *Dimension from easily identifiable permanent features (buildings, monuments, sidewalks, pavements, etc.) points of connection, wiring routing, conduit locations, all stub-up locations and other related equipment as directed by the Agency's Authorized Representative.*
 - 3. *Deliverables:* *Upon completion of the electrical system installation, submit two (2) sets of redlined record data prints to the Agency's Authorized Representative for approval prior to transferring information onto the signed original Mylar's.*
 - 4. *Submittal of Record Set:* *Upon completion of the electrical system installation, and as a condition of its acceptance, deliver to the Agency's Authorized Representative, in Record Drawings referred to above. The delivery of the Record Drawings shall not relieve the Contractor of the responsibility of furnishing required information that may have been omitted.*

1.07 SUBSTITUTIONS

- A. *Where manufacturer's name and catalog number are called out, the phrase "or approved equal" can be assumed except the burden of proving equality is on the bidder.*

1.08 GUARANTEE

- A. *All electrical work and equipment shall be guaranteed for one year from the date of acceptance on contractor's letterhead and turned over to the Agency at the completion and final acceptance of the job.*

PART 2 – PRODUCTS

2.01 UNDERGROUND SERVICE PEDESTAL

- A. *Meter pedestal "MP" shall be NEMA 3R 120/240-volt, single phase, three (3) wire with one hundred (100) amp, two-pole main circuit breaker rated forty-two thousand (42,000) AIC. The service shall be a free-standing pre-wired pedestal assembly. Pedestal shall have underground pull section meter (without test blocks) and main disconnect. Pedestal shall comply with the requirements of the serving utility. Install black on white micarta nameplates on all sections, switches and spaces. Provide rodent screens. Pedestal shall be Meyers or approved equal, model numbers are indicated on the drawings. Bolt to concrete pad.*

2.02 SWITCHES

- A. *Switches shall be quick-make, quick-break type QMB rated six hundred (600) volts with frame size, number of poles and fuses as shown.*

2.03 CIRCUIT BREAKERS

- A. *Circuit breakers shall be bolt-on molded case type with thermal magnetic trips. Provide with rated voltage, frame size, number of poles and trip setting as shown. NEMA interrupting capacity shall be 42,000 AIC at 120/240 volts unless otherwise noted on plans.*

2.04 PANELBOARDS

- A. *Panel boards shall be surface mounted in pedestal, with bolt-on circuit breakers type NQOB, with hinged lockable doors and typewritten directories. All multi-pole breakers shall be single handle common type. Use "SWD" circuit breakers for lighting circuits controlled from panels. Manufacturer shall be G.E., Square D, Westinghouse or Challenger.*

2.05 WIRE

- A. *Conduit shall be six hundred (600) volt insulation type THWN/THHN copper.*

2.06 CONDUIT

- A. *Conduit shall be rigid steel galvanized for exposed or in damp locations. Conduit underground shall be PVC schedule 40 with ground wire, minimum twenty-four (24) inches below grade unless noted otherwise.*

2.07 CONDUCTORS

- A. *Conductors shall be six hundred (600) volt insulation, type THHN/THWN copper.*

2.08 SPLICES

- A. *Splices on conductor's #8 or smaller shall be Skotch-lok spring connectors and for larger size cables use solder less connectors.*
- B. *Splices below grade shall be epoxy encapsulated "3M" or approved equal.*

2.09 AREA LIGHTING

- A. ***Refer to the City Of Fontana Park Design Standards Manual. Please contact City of Fontana's Public Works Department's Landscape Division for the current up to date information as it pertains to your project.***

Public Works Department Contact Info: Luis Villalobos at 909-350-6776 or by email at Lvillalobos@fontana.org

- C. *Refer to drawing for concrete pole base.*

PART 3 - EXECUTION

3.01 EXCAVATION

- A. Obstructions: The contractor's attention is directed to the existence of pipe and other underground improvements which may or may not be shown on plans. All reasonable precautions shall be taken to preserve and protect any such improvements whether shown improvements in order to prosecute the work, they shall be removed, maintained in operation, and permanently replaced by the contractor at his expense.
- B. Trenching: Trenches shall be excavated to the lines and grades established by the engineer. Bottom of trenches graded and prepared to provide a firm and uniform bearing throughout the entire length of conduit runs.
 - 1. Trench Bottoms: Made more stable by wetting and tramping where fills are required and brought to a uniform grade.
 - 2. Minimum Trench Depth: Sufficient to provide a minimum cover twentyfour (24) inches above topmost portions of conduits.

3.02 CONDUIT AND WIRING

- A. All conduit and wiring shall be installed underground in accordance with applicable regulations and the electrical drawings. Conduit runs are shown diagrammatically. Exact routing and location of the equipment to be determined in the field by the Agency's representative. Provide one thousand-two hundred (1,200) lb. test pull cord in each empty conduit and cap both ends.

3.03 EXTERIOR EQUIPMENT

- A. All equipment and wiring to be weatherproof, including rodent screens.

3.04 GROUNDING

- A. All metallic conduits supports and enclosures shall be grounded in compliance with the National Electrical Code.

3.05 ELECTRICAL SERVICE FACILITIES

- A. Electrical service and metering facilities shall be installed in compliance with all requirements of the Southern California Edison Company.

3.06 TESTING

- A. *All new circuits shall be tested for short and open circuit to ground with a megger; resistance to ground shall be in compliance with the requirements of the National Electrical Code.*
- B. *All lighting fixtures with adjustable aiming shall be verified at night in the presence of the Agency's Authorized Representative to comply with the manufacturer's aiming diagram to the satisfaction of the Agency's Authorized Representative.*
- C. *Fontana Police Department requires a minimum of one (1) foot candle for all areas within parking lots, walkways, and structures.*

END OF ELECTRICAL SECTION

A. PRE-FINAL AND FINAL ACCEPTANCE**1. Conditions for Pre-Final Acceptance of Work at End of Maintenance Period:**

- a. *Each plant shall be alive and thriving, showing signs of growth and no signs of stress, disease, or any other.*
- b. *All plants not meeting these conditions shall be replaced and a Ninety (90) Day Maintenance Period commenced for such plants.*
- c. *Lawn areas shall be 100% weed free unless otherwise approved by the Agency's Authorized Representative.*
- d. *Lawn areas shall have 100% germination and establishment of turf.*

2. Corrective Work:

- a. *Work requiring corrective action or replacement is the judgment of the Agency's Authorized Representative and shall be performed within ten (10) calendar days after the Pre-Final Review.*
- b. *Perform corrective work and materials replacement in accordance with the Drawings and Specifications and shall be made by the Contractor at no cost to the Agency.*
- c. *After corrective work is completed, the Contractor shall again request a Pre-Final Review for Pre-Final Acceptance as outlined above.*
- d. *Continue maintenance of all landscaped areas until such time as all corrective measures have been completed and accepted by the Agency's Authorized Representative.*

3. Final Observation Prior to Acceptance:

- a. *The Contractor shall operate each system in its entirety for the Agency's Authorized Representative at time of final observation. Any items deemed not acceptable, or not in compliance with these specifications and drawings, shall be reworked to the complete satisfaction of the Agency's Authorized Representative. **If the City will be maintaining the project projects will only be taken over on the 1st or the 15th of the month.***
- b. *The Contractor shall show evidence to the Agency's Authorized Representative that the Agency has received all accessories, charts, record drawings, and equipment as required before final observation can occur.*

4. *Final Acceptance:* *Final approval and acceptance of the work will be given when the following conditions, as determined by the Agency's Authorized Representative have been met:*
- a. *At completion of the ninety (90) day maintenance period, and when one hundred (100) percent germination and plant establishment is obtained.*
 - b. *All planting areas shall be weed free unless otherwise approved by the Agency's Authorized Representative.*
 - c. *After final inspection and acceptance by the Agency's Authorized Representative.*
 - d. *The Agency's Authorized Representative reserves the option to extend the maintenance period beyond (90) days specified, if they determined that further maintenance is necessary to provide the one hundred (100) percent establishment required by the Contract Documents.*
 - e. *Approval and acceptance for operation and maintenance will be given in writing by the Agency's Authorized Representative.*
 - f. *Final acceptance is done through a City Council meeting at the next available meeting once all items are complete to the satisfaction of the Public Works Inspector assigned to the project.*

5. *Record Drawings*

- a. *Before the date of the final site review, the Contractor shall transfer the Asbuilt's set of red line drawings to the Agency's or developers Authorized Representative who will deliver them to the Landscape Architect of record. The Landscape Architect shall transfer all information from the As-built's set of prints to a sepia Mylar or similar Mylar material. All work shall be in waterproof India ink and applied to the Mylar by a technical pen made expressly for use on Mylar material. Such pen shall be similar to those manufactured by Rapidograph, Kueffel & Esser, or Faber Castell. Or make all the corrections electronically and submit them by email. The dimensions shall be made so as to be easily readable even on the final controller chart (see Section 1.05C). **The original Mylar "record" plan and a digital copy shall be submitted to the Agency's Authorized Representative for approval prior to the making of controller charts.***

6. *Controller Charts*

- a. ***Record drawing shall be approved by the Agency's Authorized Representative before controller charts are prepared.***

- b. *Provide one (1) laminated hard copy and one (1) PDF version of the controller chart for each controller supplied once redlines are approved.*
- c. *The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.*
- d. *The chart is to be a reduced drawing of the actual record drawing, of a maximum size that will fit inside the controller housing. Double sided charts at a larger scale maybe required for readability if the single sided drawing is not legible.*
- e. *The chart shall be a black-line print and a different color shall be used to indicate the area of coverage for each station, using pastel or transparent colors. Designate all crossings and sleeves on the chart. The Contractor shall dimension from two permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:*
 - 1. *Connection to existing water lines.*
 - 2. *Connection to existing electrical power.*
 - 3. *Gate valves.*
 - 4. *Routing and/or directional turns of sprinkler pressure lines (dimension maximum one hundred (100) feet along routing).*
 - 5. *Sprinkler control valves.*
 - 6. *Routing of control wiring.*
 - 7. *Quick coupling valves.*
 - 8. *Other related equipment as directed by the Agency's Authorized Representative.*
 - 9. *Show all domestic lines*
- 7. *When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each being a minimum twenty (20) mils.*
- 8. *These charts shall be completed and approved prior to final acceptance of the irrigation system.*
- 9. *Operation and Maintenance Manuals:*
 - a. *Prepare and deliver to the Agency's Authorized Representative within ten (10) calendar days prior to completion of construction, two hard cover binders, with three rings containing the following information:*

1. *Index sheet stating Contractor's address and telephone number, list of equipment with name and address of local manufacturer's representative.*
2. *Maintenance Manual Catalog and part sheets on every material and equipment installed under this contract.*
3. *Complete operating and maintenance instruction on all major equipment.*
4. *In addition to the above-mentioned maintenance manuals, provide the Agency's maintenance personnel with instructions for major equipment and show evidence in writing to the Agency's Authorized Representative at the conclusion of the project that this service has been rendered.*

10. *Equipment to Be Furnished*

- a. *Supply as part of this contract the following tools:*
 1. *Two (2) keys for each automatic controller including all operations and maintenance manuals.*
 2. *One (1) laminated hard copy and one (1) PDF version of the controller chart for each controller supplied.*
- b. *The above-mentioned equipment shall be turned over to the Agency at the conclusion of the project. Before final acceptance can occur, evidence that the Agency has received material must be shown to the Agency's Authorized Representative.*

11. *GUARANTEE / WARRANTY LETTERS*

- a. *Guarantee/Warranty statements.*
 1. *One (1) for each listed below*
 2. *Irrigation Controller Certification*
 - a. **SHALL** *be provided prior to starting the 90 day Maintenance period from the approved supplier of the irrigation controller.*
 3. *Irrigation*
 - a. *Backflow Certificates*
 1. **SHALL** *be provided for each backflow prior to starting the 90 day Maintenance period from a certified backflow tester*

4. *Plant Material*
5. *Electrical*
6. *Playground Equipment and Surfacing (If applicable)*
7. *Playground and Playground Surfacing Certification (If Applicable)*

- b. *The **GURANTEE STATEMENTS** for the **ABOVE ITEMS** shall be made in accordance with the following forms. The general conditions and supplementary conditions of these specifications shall be filed with the Agency or its representative prior to acceptance of project.*
- c. *A copy of the guarantee forms shall be included in the operations and maintenance manual.*
- d. ***All guarantee forms shall be retyped onto the Contractor's letterhead and contain the following information for each subsequent item. See all letters below.***

12. TEMPORARY REPAIRS

- a. *The Agency reserves the right to make temporary repairs as necessary to keep any of the items in operating condition. The exercise of this right by the Agency shall not relieve the Contractor of their responsibilities under the terms of the guarantee as herein specified.*

GUARANTEE FOR IRRIGATION SYSTEM

*We hereby guarantee that the irrigation system we have furnished and installed is free from defects in materials and workmanship including settling of backfill areas below grade, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect excepted. The flow sensor and master valve have been installed and are working properly and on the City's frequency. We agree to repair or replace any defect in material or workmanship which may develop during the period of **(1) one** year from the date of acceptance and also to repair or replace any damage resulting from the repairing of such defects at no additional cost to the Agency. We shall make such repairs or replacements within three days, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorized the Agency to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.*

PROJECT: _____

CONTRACTOR: _____ PHONE NO.: _____

ADDRESS: _____ BY: _____ DATE

OF ACCEPTANCE: _____ BY: _____

GUARANTEE FOR LAWNS AND GRASSES

*We hereby guarantee that the Lawns and Grasses we have furnished and installed is free from defects in materials and workmanship including settling of backfill areas below grade, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect excepted. We agree to repair or replace any defect in material or workmanship which may develop during the Warranty Time Period: Warrant that all lawns and grasses shall be in a healthy and flourishing condition of active growth **(6) six** months from date of Final Acceptance, and repair or replace any damage resulting from the repairing of such defects at no additional cost to the Agency. Appearance During Warranty: Lawns shall be free of dead or dying patches, and all areas shall show foliage of a normal density, size and color. Delays: All delays in completion of planting operations which extend the planting into more than one planting season shall extend the Warranty Period correspondingly. Coverage: Warrant growth and coverage of hydro seeded planting to the effect that one hundred (100) percent of the area planted shall be covered with specified planting after one growing season with no bare spots. We shall make such repairs or replacements within three days, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorized the Agency to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.*

PROJECT: _____

CONTRACTOR: _____ PHONE NO.: _____

ADDRESS: _____ BY: _____ DATE

OF ACCEPTANCE: _____ BY: _____

GUARANTEE FOR ALL PLANTS AND TREE MATERIAL

We hereby guarantee that the PLANT'S AND TREE MATERIAL we have furnished and installed is free from defects in materials and workmanship including settling of backfill areas below grade, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect excepted. We agree to repair or replace any defect in material or workmanship which may develop during the Warranty Time Period: Warrant that all trees, planted under this Contract will be healthy and in flourishing condition of active growth **(1) one** year from date of Final Acceptance and also to repair or replace any damage resulting from the repairing of such defects at no additional cost to the Agency. Similarly warrant shrubs, and ground covers for a period of 90 days after Final Acceptance. Delays: All delays in completion of planting operations which extend the Warranty Period correspondingly. Condition of Plants: Plants shall be free of dead or dying branches and branch tips, with all foliage of a normal density, size and color. Replacements: As soon as weather conditions permit, replace, without cost to the Agency, all dead plants and all plants not in a vigorous, thriving condition, as determined by Agency's Authorized Representative during, and at the end of Warranty Period. Plant materials exhibiting conditions which are determined as being unacceptable due to workmanship by the Contractor shall be repaired and/or replaced at no additional cost to the Agency. Closely match replacements to adjacent specimens of the same species. Apply all requirements of this Specification to all replacements. Replacement Quantities: Contractor shall be held responsible for a maximum of two (2) replacements for each tree, shrub, and same area of ground cover planting during warranty period. We shall make such repairs or replacements within three days, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorized the Agency to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT: _____

CONTRACTOR: _____ PHONE NO.: _____

ADDRESS: _____ BY: _____ DATE

OF ACCEPTANCE: _____ BY: _____

GUARANTEE FOR ELECTRICAL SYSTEM

*We hereby guarantee that the Electrical system we have furnished and installed is free from defects in materials and workmanship including settling of backfill areas below grade, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect excepted. We agree to repair or replace any defect in material or workmanship which may develop during the period of **(1) one** year from the date of acceptance and also to repair or replace any damage resulting from the repairing of such defects at no additional cost to the Agency. We shall make such repairs or replacements within three days, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorized the Agency to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.*

PROJECT: _____

CONTRACTOR: _____ PHONE NO.: _____

ADDRESS: _____ BY: _____ DATE _____

OF ACCEPTANCE: _____ BY: _____

GUARANTEE FOR PLAYGROUND EQUIPMENT AND PLAYGROUND SURFACING

*We hereby guarantee that the Playground Equipment and Playground Surfacing we have furnished and installed is free from defects in materials and workmanship and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse or neglect excepted. We agree to repair or replace any defect in material or workmanship which may develop during the period of **(1) one** year from the date of acceptance and also to repair or replace any damage resulting from the repairing of such defects at no additional cost to the Agency. We shall make such repairs or replacements within three days, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorized the Agency to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.*

PROJECT: _____

CONTRACTOR: _____ PHONE NO.: _____

ADDRESS: _____ BY: _____ DATE _____

OF ACCEPTANCE: _____ BY: _____

GURANTEE AND PLAYGROUND AND PLAYGROUND SURFACING CERTIFICATION

We hereby guarantee that the PLAYGROUND AND PLAYGROUND SURFACING has been inspected and CERTIFIED by a Certified Playground Safety Inspector. All items have furnished and installed and are free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications. Provide proper documentation and the Summary of Approval from the Inspector with this Guarantee.

PROJECT:

CONTRACTOR: _____ **PHONE NO.:** _____

ADDRESS: _____ **BY:** _____ **DATE**

OF ACCEPTANCE: _____ **BY:** _____

ORDINANCE NO. 1734

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF
FONTANA, CALIFORNIA AMENDING ARTICLE IV OF CHAPTER
28 OF THE FONTANA MUNICIPAL CODE REGARDING
LANDSCAPING AND WATER CONSERVATION**

WHEREAS, the City of Fontana, California (the "City") is a municipal corporation, duly organized under the constitution and laws of the State of California; and

WHEREAS, pursuant to Chapter 28 of the Fontana Municipal Code, the City regulates vegetation and, in particular, Article IV of that Chapter relates to Landscaping and Water Conservation; and

WHEREAS, the State Legislature has found: (1) that the waters of the State are of limited supply and are subject to ever increasing demands; (2) that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses; (3) that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource; (4) that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; (5) that landscape design, installation, maintenance and management can and should be water efficient; and (6) that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use; and

WHEREAS, the City Council of the City of Fontana concurs with the State Legislature's findings and further finds that the conservation of water is an important goal of the City; and

WHEREAS, the Water Conservation in Landscaping Act of 2006 (AB 1881) required cities and counties to adopt ordinances that required efficiency of water use in new and existing urban irrigated landscapes in California; and

WHEREAS, the requirements of the Water Conservation in Landscaping Act of 2006 were recently amended by the Department of Water Resources and have been codified at California Code of Regulations, Title 23, Division 2, Chapter 2.7, Section 490 et seq.; and

WHEREAS, the City Council of the City of Fontana wishes to implement comprehensive regulations related to water efficient landscaping in order to comply with the Governor's Executive Order B-29-15 and the provisions of the California Code of Regulations adopted in conformity therewith; and

WHEREAS, the City Council, therefore, wishes to amend certain provisions of Article IV of Chapter 28 of the Fontana Municipal Code regarding Landscaping and Water Conservation in order to comply with State of California Model Water Efficient Landscape Ordinance (codified at California Code of Regulations, Title 23, Division 2, Chapter 2.7, Section 490 et seq.) to promote water efficiency measures, to promote water conservation and to protect the public health, safety, and welfare; and

WHEREAS, under California law, if a city does not adopt an ordinance that is at least as restrictive as the Model Water Efficient Landscape Ordinance, the State Model Water Efficient Landscape Ordinance becomes effective in the City; and

WHEREAS, on November 10, 2015 the City Council introduced this Ordinance; and

WHEREAS, all other legal prerequisites to the adoption of this Ordinance have occurred.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF FONTANA, CALIFORNIA DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Incorporation of Recitals. The above recitals are true and correct and are incorporated herein by this reference.

SECTION 2. Article IV of Chapter 28 of the Fontana Municipal Code is hereby amended to read in its entirety as follows:

“ARTICLE IV. – LANDSCAPING AND WATER CONSERVATION

Sec. 28.91. – Purpose.

(a) The City finds that:

- (1) Landscaping enhances the physical appearance of the community, improves the physical performance of new development by contributing to the abatement of heat, glare, erosion and noise, and by promoting natural percolation of water and improving air quality and thereby conserving the value of property and neighborhoods within the City;
- (2) The limited supply of city and state waters are subject to ever increasing demands;
- (3) The economic prosperity of the City and the State depends on adequate supplies of water;
- (4) City and state policy promotes the conservation and efficient use of water and to prevent the waste of this valuable resource;
- (5) Landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development;

- (6) Landscape design, installation, and maintenance can and should be water efficient; and
 - (7) Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.
- (b) Consistent with these findings, the purpose of this Article is to:
- (1) Promote the values and benefits of landscaping practices that integrate and go beyond the conservation and efficient use of water;
 - (2) Establish a structure for designing, installing, and maintaining, and managing water efficient landscapes in new construction and rehabilitated projects by encouraging the use of a watershed approach that requires cross-sector collaboration of industry, government and property owners to achieve the many benefits possible;
 - (3) Establish provisions for water management practices and water waste prevention for existing landscapes;
 - (4) Use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount; and
 - (5) Establish, procedures and guidelines for the administration of plan check submittal and the subsequent approval of plans.
- (c) Landscapes that are planned, designed, installed, managed and maintained with the watershed-based approach can improve the City's environmental conditions and provide benefits and realize sustainability goals. Such landscapes will make the urban environment resilient in the face of climatic extremes. Consistent with the legislative findings and purpose of this Article, conditions in the urban setting will be improved by:
- (1) Creating the conditions to support life in the soil by reducing compaction, incorporating organic matter that increases water retention, and promoting productive plant growth that leads to more carbon storage, oxygen production, shade, habitat and esthetic benefits;
 - (2) Minimizing energy use by reducing irrigation water requirements, reducing reliance on petroleum-based fertilizers and pesticides, and planting climate appropriate shade trees in urban areas;
 - (3) Conserving water by capturing and reusing rainwater and gray water wherever possible and selecting climate appropriate plants that need minimal supplemental water after establishment;
 - (4) Protecting air and water quality by reducing power equipment use and landfill disposal trips, selecting recycled and locally sourced materials, and using compost, mulch and efficient irrigation equipment to prevent erosion; and
 - (5) Protecting existing habitat and creating new habitat by choosing local native plants, climate adapted non-natives and avoiding invasive plants. Utilizing integrated pest management with least toxic methods as the first course of action.

Sec. 28-92. - Applicability.

- (a) After December 1, 2015, and consistent with Executive Order No. B-29-15, this Article shall apply to all of the following landscape projects:
 - (1) New development projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building permit, plan check or design review;
 - (2) Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building permit, plan check, or design review;
 - (3) Existing landscapes limited to Sections 28-106 and 28-115; and
 - (4) Cemeteries. Recognizing the special landscape needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 28-98, 28-105 and 28-106 of this Article. Existing cemeteries are limited to Sections 28-106 and 28-115 of this Article.
- (b) Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this Article or conform to the prescriptive measures contained in Section 28-120.
- (c) For projects using treated or untreated gray water or rainwater captured on site, any lot or parcel within the project that has less than 2500 sq. ft. of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated gray water or through stored rainwater captured on site is subject only to Section 28-120 (b) (5).
- (d) This Article does not apply to:
 - (1) Registered local, state or federal historical sites;
 - (2) Ecological restoration projects that do not require a permanent irrigation system;
 - (3) Mined-land reclamation projects that do not require a permanent irrigation system; or
 - (4) Existing plant collections, as part of botanical gardens and arboretums open to the public.

Sec. 28-93. – Definitions.

The terms used in this Article have the meaning set forth below:

- (a) “Applied water” means the portion of water supplied by the irrigation system to the landscape.
- (b) “Automatic irrigation controller” means timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
- (c) “Backflow prevention device” means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

- (d) "Certificate of Completion" means the document required under Section 28103.
- (e) "Certified irrigation designer" means a person certified to design irrigation systems by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's Water Sense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.
- (f) "Certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's Water Sense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.
- (g) "Check valve" or "anti-drain valve" means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- (h) "Common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- (i) "Compost" means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.
- (j) "Conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year.
- (k) "Distribution uniformity" means the measure of the uniformity of irrigation water over a defined area.
- (l) "Drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- (m) "Ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- (n) "Effective precipitation" or "usable rainfall" (Eppt) means the portion of total precipitation which becomes available for plant growth.
- (o) "Emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.
- (p) "Established landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
- (q) "Establishment period of the plants" means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth. Native habitat mitigation areas and trees may need three to five years for establishment.
- (r) "Estimated Total Water Use" (ETWU) means the total water used for the landscape as described in Section 28-98.

- (s) "ET adjustment factor" (ETAF) means a factor of 0.55 for residential areas and 0.45 for nonresidential areas, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing nonrehabilitated landscapes is 0.8.
- (t) "Evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
- (u) "Flow rate" means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
- (v) "Flow sensor" means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or sub-meter.
- (w) "Friable" means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.
- (x) "Fuel Modification Plan Guideline" means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.
- (y) "Gray water" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Gray water" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.
- (z) "Hardscapes" means any durable material (pervious and non-pervious).
- (aa) "Hydro zone" means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydro zone may be irrigated or non-irrigated.
- (bb) "Infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- (cc) "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

- (dd) "Irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency "Water sense" labeled auditing program.
- (ee) "Irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates irrigation system characteristics and management practices. The irrigation efficiency for purposes of this Article is 0.75 for overhead spray devices and 0.81 for drip systems.
- (ff) "Irrigation survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
- (gg) "Irrigation water use analysis" means a review of water use data based on meter readings and billing data.
- (hh) "Landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- (ii) "Landscape area" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- (jj) "Landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- (kk) "Landscape Documentation Package" means the documents required under Section 28-95.
- (ll) "Landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 28-92.
- (mm) "Landscape water meter" means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.
- (nn) "Lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- (oo) "Local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance,

including but not limited to, approval of a permit and plan check or design review of a project.

- (pp) "Local water purveyor" means any entity, including a public agency, city, county, or private water company that provides retail water service.
- (qq) "Low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- (rr) "Main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.
- (ss) "Master shut-off valve" is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.
- (tt) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 28-98. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0. $MAWA = (ET_o) (0.62) [(ETAF \times LA) + ((1ETAF) \times SLA)]$.
- (uu) "Median" is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.
- (vv) "Microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.
- (ww) "Mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
- (xx) "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, or decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.
- (yy) "New construction" means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
- (zz) "Non-residential landscape" means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.
- (aaa) "Operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

- (bbb) "Overhead sprinkler irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).
- (ccc) "Overspray" means the irrigation water which is delivered beyond the target area.
- (ddd) "Permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
- (eee) "Pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.
- (fff) "Plant factor" or "plant water use factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the publication "Water Use Classification of Landscape Species". Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).
- (ggg) "Project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 28-95 to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.
- (hhh) "Rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.
- (iii) "Record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
- (jjj) "Recreational area" means areas, excluding private single family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf courses tees, fairways, roughs, surrounds and greens.
- (kkk) "Recycled water", "reclaimed water", or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
- (III) "Reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Section 28121, and is an estimate of the evapotranspiration of a large field of four-to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.
- (mmm) "Regional Water Efficient Landscape Ordinance" means a local Ordinance adopted by two or more local agencies, water suppliers and other

stakeholders for implementing a consistent set of landscape provisions throughout a geographical region. Regional ordinances are strongly encouraged to provide a consistent framework for the landscape industry and applicants to adhere to.

- (nnn) "Rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 2892, and the modified landscape area is equal to or greater than 2,500 square feet.
- (ooo) "Residential landscape" means landscapes surrounding single or multifamily homes.
- (ppp) "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.
- (qqq) "Soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
- (rrr) "Soil texture" means the classification of soil based on its percentage of sand, silt, and clay.
- (sss) "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.
- (ttt) "Sprinkler head" means a device which delivers water through a nozzle.
- (uuu) "Static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.
- (vvv) "Station" means an area served by one valve or by a set of valves that operate simultaneously.
- (www) "Swing joint" means an irrigation component that provides a flexible, leakfree connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
- (xxx) "Sub meter" means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.
- (yyy) "Turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyu grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.
- (zzz) "Valve" means a device used to control the flow of water in the irrigation system.
- (aaaa) "Water conserving plant species" means a plant species identified as having a very low or low plant factor.
- (bbbb) "Water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydro zone of the landscape area. Constructed

wetlands used for on-site wastewater treatment or storm water best management practices that are not irrigated and used solely for water treatment or storm water retention are not water features and, therefore, are not subject to the water budget calculation.

(cccc) “watering window” means the time of day irrigation is allowed.

(dddd) “WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension and the Department of Water Resources in 2014.

Sec. 28-94. – Landscape Documentation Package - Process.

- (a) A copy of the landscape documentation package conforming to this Article shall be submitted to the City's Department of Engineering as part of an application for review and approval of landscaping and irrigation at the time of landscape plan check submittal. No certificate of occupancy or other final City approval shall be issued until the City Engineer or designee reviews and approves the landscape documentation package and confirms that the landscaping and irrigation has been installed in accordance with approved plans.
- (b) The City's Department of Engineering shall review the landscape documentation package submitted by the project applicant at the time of plan submittal for building and safety permits;
- (c) The City's Department of Engineering shall approve or deny the landscape documentation package;
- (d) Arborists' permits. If required by Article III, Sections 28-61 et seq., arborist reports and plans must be submitted to City Engineer or designee. Thereafter, the report and plans shall be reviewed to ensure conformity both with this Article and Article III, Sections 28-61 et seq. The recommendation of the arborist report shall be incorporated into the landscape plans.

Sec. 28-95. – Landscape Documentation Package – Contents.

- (a) The Landscape Documentation Package shall include the following elements:
 - (1) Project information
 - a. Date
 - b. Project applicant, property owner, and/or property owner's representative (address and contact information)
 - c. Project address, assessor's parcel number(s), tract number (lots and phase), and, if available, cross streets
 - d. Vicinity Map
 - e. Site Plan
 - f. Total landscape area (square feet)
 - g. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed, industrial, and developer installed front yard, side, and rear per Chapter 30 of this Code)
 - h. Water supply type (e.g., potable, recycled, well) and identify

- the local retail water purveyor if the applicant is not served by a private well
 - i. Checklist of all documents in Landscape Documentation Package
 - j. Applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".
- (2) Water Efficient Landscape Worksheet
 - a. Water budget calculations
 - 1. Maximum Applied Water Allowance (MAWA)
 - 2. Estimated Total Water Use (ETWU)
- (3) Soil management report
- (4) Landscape design plan
- (5) Irrigation design plan
- (6) Grading design plan, if applicable
- (7) Any other documents required by the City including, but not limited to, the following: hardscape plan; arborist report; preliminary landscape plan; landscape construction plans; and Plan check fees
- (b) Drawing standards. All sheets except the title sheet shall comply with the City's specifications on file with the Department of Engineering

Sec. 28-96. – Enforcement and Penalties.

- (a) For the purposes of ensuring that persons comply with the provisions of this Article, the City Engineer, or designee may, following written notice to subject property owner, initiate enforcement action against such property owner or designee, which enforcement action may include, but not limited to, the following:
 - (1) Revocation of a landscape documentation package;
 - (2) Revocation of an approved conditional use permit;
 - (3) Withholding issuance of a certificate of use and occupancy or building permit; and
 - (4) Issuance of a stop work order.
- (b) In addition to any other remedies available for any violation of this Code, including but not limited to administrative citations, the City may bring and maintain any action permitted by law to restrain, correct, or abate any violation of this Article.

Sec. 28-97. – Appeals.

- (a) Right of appeal. Any action taken by the City Engineer or designee in the administration and/or enforcement of the provisions of this Article may be appealed by an applicant, property owner or designee of any applicable project to the Planning Commission. An appeal stays proceedings until a determination of the appeal has been made. If the Planning Commission

fails to make its decision within the time limit specified in section 28-97(d), the applicant may file an appeal with the City Council requesting a decision by that body. Such an appeal must be made within ten days after the expiration of the time limit specified in section 28-97(d).

- (b) Application for appeal. The notice of appeal shall be in writing and shall be filed with the Department of Engineering upon forms provided by the City. An appeal of any action in the administration and/or enforcement of this Article shall indicate specifically the reasons for appeal.
- (c) Time for filing. Any appeal shall be filed within ten calendar days from the date of notification of a decision from which the appeal is made. Upon the filing of appeal, the department of engineering shall transmit a copy of the appeal to the clerk of the body hearing the appeal and to the Department of Community Development for the processing of such appeal.
- (d) Hearing date and notice. Upon receipt of the notice of appeal, the body hearing the appeal shall set a date for hearing of the matter and give notice of the date, time and place of the hearing to the appellant at least ten days prior to the date of the hearing. Prior to such hearing, the community development department shall transmit to the clerk of the body hearing the appeal a report of the findings and shall present all documents on file at the hearing. The appeal hearing shall be scheduled no sooner than 21 days nor no later than 51 days from the date the appeal application has been deemed to be complete. This time limit may be extended by mutual agreement of the City and the applicant.

Sec. 28-98. – Water Efficient Landscape Worksheet

- (a) A project applicant shall complete the Water Efficient Landscape Worksheet, which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydro zone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. ETWU must be below the MAWA.
 - (1) In calculating the MAWA and ETWU, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Section 28-121.
- (b) Water budget calculations shall adhere to the following requirements:
 - (1) The plant factor used shall be from WUCOLS or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for very low water using

- plants, 0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
- (2) All water features shall be included in the high water use hydro zone and temporarily irrigated areas shall be included in the low water use hydro zone.
 - (3) All Special Landscape Areas shall be identified, and their water use calculated as shown on the Sample Water Efficient Landscape Worksheet kept on file with the City's Department of Engineering.
 - (4) ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

Sec. 28-99. – Soil Management Report

- (a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:
 - (1) Submit soil samples to a laboratory for analysis and recommendations.
 - a. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
 - b. The soil analysis shall include:
 - 1. Soil texture;
 - 2. Infiltration rate determined by laboratory test or soil texture infiltration rate table;
 - 3. PH;
 - 4. Total soluble salts;
 - 5. Sodium;
 - 6. Percent organic matter; and 7. Recommendations.
 - c. In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.
 - (2) The project applicant, or his/her designee, shall comply with one of the following:
 - a. If significant mass grading is not planned, the soil analysis report shall be submitted to the City as part of the Landscape Documentation Package; or
 - b. If significant mass grading is planned, the soil analysis report shall be submitted to the City as part of the Certificate of Completion.
 - (3) The soil analysis report shall be made available, in a timely manner, to the City Landscape Inspector or inspector designated by the City Engineer, and to the landscape contractor prior to the installation of any plant material.

- (4) The project applicant, or his/her designee, shall submit to an inspection by a City Landscape Inspector or inspector designated by the City Engineer, verifying implementation of soil management report recommendations. .

Sec. 28-100. – Landscape Design Plan

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

(1) Plant Material

- a. Any plant may be selected for the landscape providing the ETWU in the landscape area does not exceed the MAWA. Methods to achieve water efficiency shall include one or more of the following:
 1. Protection and preservation of native species and natural vegetation;
 2. Selection of water-conserving plant, tree and turf species, especially local native plants;
 3. Selection of plants based on local climate suitability, disease and pest resistance;
 4. Selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area; and
 5. Selection of plants from local and regional landscape program plant lists.
 6. Selection of plants from local Fuel Modification Plan Guidelines.
- b. Each hydro zone shall have plant materials with similar water use, with the exception of hydro zones with plants of mixed water use, as specified in Section 28-101 (a)(2)(d).
- c. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:
 1. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
 2. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; allow for adequate soil volume for healthy root growth and
 3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

- d. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- e. High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.
- f. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Fire-prone plant materials and highly flammable mulches shall be avoided.
- g. The use of invasive plant species, such as those listed by the California Invasive Plant Council, is strongly discouraged.
- h. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

(2) Water Features

- a. Recirculating water systems shall be used for water features.
- b. Where available, recycled water shall be used as a source for decorative water features.
- c. Surface area of a water feature shall be included in the high water use hydro zone area of the water budget calculation.
- d. Pool and spa covers are highly recommended.

(3) Soil Preparation, Mulch and Amendments

- a. Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.
- b. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 28-99).
- c. For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.
- d. A minimum three-inch (3") layer of mulch shall be applied on all exposed soil surfaces of

planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to 5 % of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.

- e. Stabilizing mulching products shall be used on slopes that meet current engineering standards.
 - f. The mulching portion of the seed/mulch slurry in hydroseeded applications shall meet the mulching requirement.
 - g. Organic mulch materials made from recycled or postconsumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.
- (b) The landscape design plan, at a minimum, shall:
- (1) Delineate and label each hydro zone by number, letter, or other method;
 - (2) Identify each hydro zone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydro zone for the water budget calculation;
 - (3) Identify recreational areas;
 - (4) Identify areas permanently and solely dedicated to edible plants;
 - (5) Identify areas irrigated with recycled water;
 - (6) Identify type of mulch and application depth;
 - (7) Identify soil amendments, type, and quantity;
 - (8) Identify type and surface area of water features;
 - (9) Identify hardscapes (pervious and non-pervious);
 - (10) Identify location, installation details, and 24-hour retention or infiltration capacity of any applicable storm water best management practices that encourage on-site retention and infiltration of storm water. Project applicants shall refer to the local agency or regional Water Quality Control Board for information on any applicable storm water technical requirements. Storm water best management practices are encouraged in the landscape design plan and examples are provided in Section 28-111.
 - (11) Identify any applicable rain harvesting or catchment technologies as discussed in Section 28-111 and their 24-hour retention or infiltration capacity;

- (12) Identify any applicable gray water discharge piping, system components and area(s) of distribution;
- (13) Contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan";
- (14) Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code); and
- (15) Identify and include any additional items required by the City's Department of Engineering, at its discretion.

Sec. 28-101. – Irrigation Design Plan

(a) This Section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

- (1) System
 - a. Landscape water meters, defined as either a dedicated water service meter or private sub meter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sqft. (the level at which Water Code 535 applies) and residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:
 - 1. A customer service meter dedicated to landscape use provided by the local water purveyor; or
 - 2. A privately-owned meter or sub meter.
 - b. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing nonvolatile memory shall be required for irrigation scheduling in all irrigation systems.
 - c. If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
 - 1. If the static pressure is above or below the required dynamic pressure of the irrigation system,

pressureregulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

2. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
- d. Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.
- e. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
- f. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.
- g. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on nonresidential landscapes and residential landscapes of 5000 sq. ft. or larger.
- h. Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
- i. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
- j. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- k. The design of the irrigation system shall conform to the hydro zones of the landscape design plan.
- l. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 28-98 regarding the MAWA.

- m. All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 8022014 "Landscape Irrigation Sprinkler and Emitter Standard, All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
- n. It is highly recommended that the project applicant inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- o. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- p. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- q. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- r. Swing joints or other riser-protection components are required on all riser's subject to damage that are adjacent to hardscapes or in high traffic areas of turf grass.
- s. Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- t. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
- u. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
 - 1. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
 - 2. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
 - 3. The irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 28-101 (a) (1) (i). Prevention of overspray and runoff must be confirmed during the irrigation audit.

- v. Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.
- (2) Hydro zone
- a. Each valve shall irrigate a hydro zone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
 - b. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydro zone.
 - c. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
 - d. Individual hydro zones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
 - 1. Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
 - 2. The plant factor of the higher water using plant is used for calculations.
 - e. Individual hydro zones that mix high and low water use plants shall not be permitted.
 - f. On the landscape design plan and irrigation design plan, hydro zone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydro zone Information Table (see the Sample Water Efficient Landscape Worksheet kept on file with the City's Department of Engineering, Section A). This table can also assist with the irrigation audit and programming the controller.
- (b) The irrigation design plan, at a minimum, shall contain:
- (1) Location and size of separate water meters for landscape;
 - (2) Location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
 - (3) Static water pressure at the point of connection to the public water supply;

- (4) Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- (5) Recycled water irrigation systems as specified in Section 28-108;
- (6) The following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan";
- (7) The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code); and
- (8) Any additional information required by the City's Department of Engineering, at its discretion.

Sec. 28-102. – Grading Design Plan

- (a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package or as otherwise approved by the City Engineer or designee. A comprehensive grading plan prepared by a civil engineer for other City permits satisfies this requirement.
 - (1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
 - a. height of graded slopes;
 - b. drainage patterns;
 - c. pad elevations;
 - d. finish grade; and
 - e. storm water retention improvements, if applicable.
 - (2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:
 - a. grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
 - b. avoid disruption of natural drainage patterns and undisturbed soil; and
 - c. avoid soil compaction in landscape areas.
 - (3) The grading/landscape design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

Sec. 28-103. – Certificate of Completion.

- (a) The Certificate of Completion (a sample certificate is kept on file with the City's Department of Engineering) shall include the following six (6) elements:
 - (1) Project information sheet that contains:
 - a. Date;
 - b. Project name;
 - c. Project applicant name, telephone, and mailing address;
 - d. Project address and location; and
 - e. Property owner name, telephone, and mailing address;
 - (2) Certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;
 - a. Where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;
 - b. A diagram of the irrigation plan showing hydro zones shall be kept with the irrigation controller for subsequent management purposes.
 - (3) Irrigation scheduling parameters used to set the controller (see Section 28-104);
 - (4) Landscape and irrigation maintenance schedule (see Section 28-105);
 - (5) Irrigation audit report (see Section 28-106); and
 - (6) Soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 28-99).
- (b) The project applicant shall:
 - (1) Submit the signed Certificate of Completion to the City for review;
 - (2) Ensure that copies of the approved Certificate of Completion are submitted to the local water purveyor and property owner or his or her designee.
- (c) The City shall:
 - (1) Receive the signed Certificate of Completion from the project applicant;
 - (2) Approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the City shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

Sec. 28-104. – Irrigation Scheduling.

- (a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

- (1) Irrigation scheduling shall be regulated by automatic irrigation controllers.
- (2) Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- (3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the ETWU. Total annual applied water shall be less than or equal to MAWA. Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
- (4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:
 - a. The plant establishment period;
 - b. The established landscape; and
 - c. Temporarily irrigated areas.
- (5) Each irrigation schedule shall consider for each station all of the following that apply:
 - a. irrigation interval (days between irrigation);
 - b. irrigation run times (hours or minutes per irrigation event to avoid runoff);
 - c. number of cycle starts required for each irrigation event to avoid runoff;
 - d. amount of applied water scheduled to be applied on a monthly basis;
 - e. application rate setting;
 - f. root depth setting;
 - g. plant type setting;
 - h. soil type;
 - i. slope factor setting;
 - j. shade factor setting; and
 - k. irrigation uniformity or efficiency setting.

Sec. 28-105. – Landscape and Irrigation Maintenance Schedule.

- (a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
- (b) A regular maintenance schedule shall include, but not be limited to, routine inspection; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas and removing and obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

- (c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.
- (d) Project applicants are encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

Sec. 28-106. – Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis – New and Rehabilitated Landscapes.

- (a) All landscape irrigation audits shall be conducted by a City landscape irrigation auditor or a third-party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape
- (b) In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
- (c) For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in Section 28-92:
 - (1) The project applicant shall submit an irrigation audit report with the Certificate of Completion to the City that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;
 - (2) The local agency shall administer programs that may include, but not limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Sec. 28-107. – Irrigation Efficiency.

- (a) For the purpose of determining ETWU, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

Sec. 28-108. – Recycled Water.

- (a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.
- (b) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
- (c) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

Sec. 28-109. – Gray water Systems.

- (a) Gray water systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All gray water systems shall conform to the California Plumbing Code (Title 24, Part 5, and Chapter 16) and any applicable local ordinance standards. Refer to Section 28-92 (c) for the applicability of this ordinance to landscape areas less than 2,500 square feet with the ETWU met entirely by gray water.
- (b)

Sec. 28-110. – Backflow Preventer Certification.

- (a) Prior to final acceptance of any City maintained landscape areas by the City, the project proponent shall submit a backflow preventer certificate which has been prepared by a person licensed by the state to perform such certifications. Such certificate shall state that the backflow prevention devices at the project shall prevent backflow of irrigation system water into the public water system.

Sec. 28-111. – Storm water Management and Rainwater Retention.

- (a) Storm water management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. The implementation of storm water best management practices into the landscape and grading design plans to minimize runoff and to increase onsite rainwater retention and infiltration is encouraged.
- (b) Project applicants shall refer to the City's Department of Public Works, Environmental Control Division, or Regional Water Quality Control Board for information on any applicable storm water technical requirements.
- (c) All planted landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to § 28-100 (a) (3).
- (d) It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.
- (e) It is recommended that storm water projects incorporate any combination of the following elements to improve on-site storm water and dry weather runoff capture and use:
 - (1) Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas;
 - (2) Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways;
 - (3) Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff;
 - (4) Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse;

- (5) Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems;
- (6) Incorporate infiltration beds, swales, basins and drywells to capture storm water and dry weather runoff and increase percolation into the soil; or
- (7) Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

Sec. 28-112. – Reserved.

Sec. 28-113. – Public Education.

- (a) Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.
 - (1) The City will make available to the public information regarding the use of appropriate principles of design, installation, management, and maintenance of water efficient landscapes to promote the efficient use of water in landscapes. .
- (b) Model Homes. All model homes shall be landscaped and shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.
 - (1) Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydro zones, irrigation equipment, and others that contribute to the overall water efficient theme. Signage shall include information about the site water use as designed per the local ordinance; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as using native plants, gray water systems, and rainwater catchment systems.
 - (2) Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

Sec. 28-114. – Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis – Existing Landscapes.

- (a) This Section shall apply to all existing landscapes that were installed before December 1, 2015 and are over one acre in size.
 - (1) For all landscapes subject to this Section that have a water meter, the City shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the MAWA for existing landscapes. The MAWA for existing landscapes shall be calculated as follows: $MAWA = (0.8) (ET_o) (LA) (0.62)$.

- (2) For all landscapes subject to this Section that do not have a meter, the City shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
- (b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

Sec. 28-115. – Water Waste Prevention.

- (a) No water shall be permitted to leave the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures.
- (b) Exceptions. It shall not be considered a violation of this Section if:
 - (1) Water leaves the target landscape to adjacent permeable surfacing and no runoff occurs; or
 - (2) Water leaves the target landscape to adjacent non-permeable surfaces in a manner designed and constructed to drain entirely to landscaping.

Sec. 28-116. – Effective Precipitation.

- (a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:
 - (1) For residential areas: $MAWA = (ET_o - Eppt) (0.62) [(0.55 \times LA) + (0.45 \times SLA)]$
 - (2) For non-residential areas: $MAWA = (ET_o - Eppt) (0.62) [(0.45 \times LA) + (0.55 \times SLA)]$

Sec. 28-117. – Verification of Landscape Installation.

- (a) No certificate of occupancy shall be issued until a city landscape inspector has verified that all irrigation, grading and planting have been completed in accordance with the approved plans and specifications of this article.
- (b) Where project conditions of approval require the landscape architect/landscape designer to perform onsite inspections and final certification of completion, the landscape architect/landscape designer shall be required to perform the inspections and verifications described in subsection (a) of this section. The city landscape inspector shall perform a city final landscape inspection for the purpose of issuance of occupancy, following receipt of the landscape certification and inspection form

completed by the landscape architect/landscape designer. Required inspections by another person other than the actual designer of the project shall require approval by the department of engineering. Under no circumstances may required inspections of the work be carried out by the installer of the work. Certificate of completion forms are available from the department of engineering.

Sec. 28-118. - Special landscape maintenance district requirements.

- (a) With regards to landscape maintenance districts or public landscape, it shall be the responsibility of the developer to incur all energy charges on all water meters and electrical meters until acceptance by council action of all public landscape areas. Landscape maintenance districts require the following items to be turned over to the city as outlined in the format in subsection (b) of this section:
- (b) Land maintenance district acceptance turn-over items shall be required pursuant to the City's specification package on file with the Department of Engineering.

Sec. 28-119. – Fees for Initial Review.

- (a) For purposes of meeting its obligations under this article and chapter, the following fees are deemed necessary to review landscape documentation packages and shall be imposed on the subject applicant, property owner or designee:
 - (1) A landscape documentation package review fee shall be due at the time of the initial project application submission to the department of engineering.
- (b) The City Council by resolution shall establish the amount of the fees described in subsection (a) of this Section in accordance with applicable law.

Sec. 28-120. – Prescriptive Compliance Option.

- (a) This Section contains prescriptive requirements which may be used as a compliance option for this Article.
- (b) Compliance with the following items is mandatory and must be documented on a landscape plan in order to use the prescriptive compliance option:
 - (1) Submit a Landscape Documentation Package which includes the following elements:
 - a. date
 - b. project applicant
 - c. project address (if available, parcel and/or lot number(s))

- d. total landscape area (square feet), including a breakdown of turf and plant material
 - e. project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
 - f. water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
 - g. contact information for the project applicant and property owner
 - h. applicant signature and date with statement, "I agree to comply with the requirements of Section 28-120 of the Fontana Municipal Code, also known as the prescriptive compliance option of the State Model Water Efficient Landscape Ordinance".
- (2) Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six inches into landscape area (unless contra-indicated by a soil test);
- (3) Plant material shall comply with all of the following;
- a. For residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 75% of the plant area excluding edibles and areas using recycled water; For non-residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 100% of the plant area excluding edibles and areas using recycled water;
 - b. A minimum three-inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
- (4) Turf shall comply with all of the following:
- a. Turf shall not exceed 25% of the landscape area in residential areas, and there shall be no turf in non-residential areas;
 - b. Turf shall not be planted on sloped areas which exceed a slope of 1-foot vertical elevation change for every 4 feet of horizontal length;
 - c. Turf is prohibited in parkways less than 10 feet wide, unless the parkway is adjacent to a parking strip and used to enter and exit vehicles. Any turf in parkways must be irrigated by sub-surface irrigation or by other technology that creates no overspray or runoff.
- (5) Irrigation systems shall comply with the following:
- a. Automatic irrigation controllers are required and must use evapotranspiration or soil moisture sensor data and utilize a rain sensor.

- b. Irrigation controllers shall be of a type which does not lose programming data in the event the primary power source is interrupted.
 - c. Pressure regulators shall be installed on the irrigation system to ensure the dynamic pressure of the system is within the manufacturers recommended pressure range.
 - d. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be installed as close as possible to the point of connection of the water supply.
 - e. All irrigation emission devices must meet the requirements set in the ANSI standard, ASABE/ICC 802-2014. "Landscape Irrigation Sprinkler and Emitter Standard," All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
 - f. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
- (6) For non-residential projects with landscape areas of 1,000 sq. ft. or more, a private sub meter(s) to measure landscape water use shall be installed.
- (c) At the time of final inspection, the permit applicant must provide the owner of the property with a certificate of completion, certificate of installation, irrigation schedule and a schedule of landscape and irrigation maintenance.

Sec. 28-121. – Reference Evapotranspiration (ET_o).

| <i>Jan.</i> | <i>Feb.</i> | <i>Mar.</i> | <i>Apr.</i> | <i>May</i> | <i>Jun.</i> | <i>Jul.</i> | <i>Aug.</i> | <i>Sep.</i> | <i>Oct.</i> | <i>Nov.</i> | <i>Dec.</i> | <i>Annua l ET_o</i> |
|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------------------------------|
| <i>2.0</i> | <i>2.7</i> | <i>3.8</i> | <i>4.6</i> | <i>5.7</i> | <i>6.9</i> | <i>7.9</i> | <i>7.4</i> | <i>5.9</i> | <i>4.2</i> | <i>2.6</i> | <i>2.0</i> | <i>55.6</i> |

NOTE: In the absence of specific Fontana ET_o rates, the above ET_o rates are set at the level reported for San Bernardino in Appendix A to the State Model Water Efficient Landscape Ordinance. Of the options available, the City of San Bernardino has the most similar climate and is closest geographically to the City of Fontana."

SECTION 3. CEQA. This Ordinance is not a project within the meaning of Section 15378 of the State of California Environmental Quality Act ("CEQA") Guidelines, because it has no potential for resulting in physical change in the environment, directly or indirectly. The City Council further finds, under Title 14 of the California Code of Regulations, Section 15061(b)(3), that this Ordinance is nonetheless exempt from the requirements of CEQA in that the activity is covered by the general rule that CEQA applies only to projects

which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The City Council, therefore, directs that a Notice of Exemption be filed with the County Clerk of the County of San Bernardino in accordance with CEQA Guidelines.

SECTION 4. Custodian of Records. The documents and materials that constitute the record of proceedings on which this Ordinance is based are located at the City Clerk's office located at 8353 Sierra Avenue, Fontana, CA 92335. The custodian of these records is the City Clerk.

SECTION 5. Severability. If any section, sentence, clause or phrase of this Ordinance or the application thereof to any entity, person or circumstance is held for any reason to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect other provisions or applications of this Ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this Ordinance are severable. The people of the City of Fontana hereby declare that they would have adopted this Ordinance and each section, sentence, clause or phrase thereof, irrespective of the fact that any one or more section, subsections, sentences, clauses or phrases be declared invalid or unconstitutional.

SECTION 6. Effective Date. This Ordinance shall become effective thirty (30) days following its adoption.

SECTION 7. Publication. The City Clerk shall certify to the adoption of this Ordinance. Not later than fifteen (15) days following the passage of this Ordinance, the Ordinance, or a summary thereof, along with the names of the City Council members voting for and against the Ordinance, shall be published in a newspaper of general circulation in the City of Fontana.

APPROVED AND ADOPTED 24th day of November, 2015.

APPENDIX I

SOLID WASTE DISPOSAL AND RECYCLING REPORT

SOLID WASTE DISPOSAL AND RECYCLING REPORT



| | | | | | | | | |
|--|--|--------------------------|-------------------|--|---|---------------------------------|---|---|
| Project Name: | | Type of Work: | | Ongoing Report <input type="checkbox"/> | Final Annual Report <input type="checkbox"/> | | | |
| Contract Number: | | Report for Calendar Year | | [Note: Separate reports needed for each calendar year] | | | | |
| Contractor Name: | | Phone Number: | | Fax: | | | | |
| Street Address | | City, State, Zip | | | | | | |
| Contractor Certification: I certify under penalty of perjury that the information provided in this form is complete and accurate. | | | | | | | | |
| Signature: | | Print Name and Title: | | Date of Report: | | | | |
| *NOTE: Earth and rock material must not be reported as either waste material diverted from or disposed of in landfills. | | | | | | | | |
| NAME AND LOCATION OF RECYCLING OR DISPOSAL FACILITY (OR ENTER "REUSED" FOR MATERIALS GENERATED AND REUSED ON THIS JOB) | | CHECK IF RECYCLER | CHECK IF LANDFILL | TYPE OF MATERIAL (Enter a letter for each type on a separate line): A = Asphalt Concrete; C = Concrete; M = Metal; D = Mixed Debris; W = Wood/Cleared Vegetation; O = Other [Please Describe] *See note above | TYPE OF ACTIVITY (Enter one activity per line) 1 = Source - Separated Materials Recycling 2 = On-Site Reuse 3 = Mixed Debris Recycling 4 = Reuse of Salvageable Items 5 = Disposal at Landfill or Transfer to Station 6 = Other [Please Describe] ^{††} | AMOUNT TAKEN TO LANDFILL (TONS) | AMOUNT DIVERTED FROM LANDFILLS TO A RECYCLING FACILITY (TONS) | AMOUNT GENERATED AND THEN REUSED ON THIS JOB (TONS) |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| † Describe Material: | | | | | | | | |
| †† Describe the Activity: | | | | | | | | |
| I have reviewed the information submitted in this report for completeness. | | | | | | | | |
| Resident Engineer's Name (Please Print): | | | | Phone Number: | | | | |
| Signature: | | | | Date: | | | | |

City of Fontana

SOLID WASTE DISPOSAL AND RECYCLING REPORT - INSTRUCTIONS

Section 1: To be completed by the contractor

Project Name: Give a brief description of the project, e.g., "Route 1 widening in Fort Bragg, CA"

Type of Work: Enter a general work description, e.g. "AC Grinding"

Ongoing Report: Checking this box means this is an annual report for a continuing project. More reports will follow this one

Final Annual Report: Checking this box means this report is for the calendar year of contract acceptance

Contract Number: Enter District/EA

Co./Rte/PM: Enter County/Route/Post-Mile

Report for Calendar Year: The calendar year for which data was collected - January 1 to December 31 [Note: This report is an annual report. A separate report is needed for each calendar year]

Company Information: Contractor Name, Phone Number, Fax Number, Street Address, City, State and Zip

Contractor Certification: I certify under penalty of perjury that the information provided in this form is complete and accurate.

Contractor should verify the data entered on this form, then sign the report and print your name, title, and date.
Return this report to the resident engineer by January 15 of each calendar year or within 15 days of contract acceptance.

Section 2: To be completed by the contractor

To count towards diversion, "solid waste" is defined as including any solid waste which would normally be disposed of at a disposal facility (PRC Section 41781 (b))

***NOTE: Earth and rock material must not be reported as either waste material diverted from or disposed of in landfills.**

NAME AND LOCATION OF RECYCLING OR DISPOSAL FACILITY (or enter "reused" for materials generated and reused on this job)

Each address should be checked as either landfills or recycler. When using a recycling facility that exists inside a landfill, check recycler and do not check landfill. When the solid waste is generated and reused on the job, the word "Reused" should be entered in place of the address.

TYPE OF MATERIAL Enter a letter for each type on a separate line:

A = Asphalt Concrete, C = Concrete; M = Metal; D = Mixed Debris; W = Wood/Cleared Vegetation; O = Other

[Describe the material when "Other" is selected][†]

TYPE OF ACTIVITY Enter a number for each activity one per line:

1 = Source-Separated Materials Recycling; 2 = On-Site Reuse; 3 = Mixed Debris Recycling; 4 = Reuse of Salvageable Items;

5 = Disposal at Landfill or Transfer to Station; 6 = Other [Describe the activity when "Other" is selected]^{††}

AMOUNT TAKEN TO LANDFILL (Tons): Enter the amount of any solid waste, in tons, that is generated on this project and taken to a landfill.

AMOUNT DIVERTED FROM LANDFILLS TO A RECYCLING FACILITY (Tons): Enter the amount of any solid waste, in tons, that is generated on this project and taken to a recycling facility.

Solid waste from this job that is used in other projects, given to other agencies (county, city, etc.) or given to private individuals for reuse will be entered as taken to a recycling facility. In this case, check the activity as "Other" and describe who gets the solid waste in the row for other activity. (e.g. given to county, city or developer)

AMOUNT GENERATED AND THEN REUSED ON THIS JOB (Tons): Enter the amount of any solid waste, in tons, that is generated on this project and then reused.

TOTAL SOLID WASTE FROM EACH JOB SHOULD APPROXIMATE THE SUM OF THE THREE QUANTITIES ABOVE.

For calculating weights, some volume to weight conversions may be needed. These conversion factors may be found at the California Integrated Waste Management Board's (CIWMB) web site at:

<http://www.ciwmb.ca.gov/LGLibrary/DSG/AppendixI.htm#Conversion>

Section 3: To be completed by the resident engineer

I have reviewed the information submitted in this report for completeness.

Resident engineer please review the report. If the form is complete, sign and print your name, phone number, and date.
Discuss and resolve with the contractor any deficiency on the form.

APPENDIX II

GEOTECHNICAL INFORMATION

REVIEWED
Aug 25 2025
BUILDING & SAFETY
CITY OF FONTANA

May 21, 2025

Project No. 13491.001

PBK Architects, Inc.
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, California 91730

Attention: Mr. Kelley Needham

Subject: Geotechnical Update Letter
Proposed Fire Station No. 80 Training Center
Southeast of Cherry Avenue and South Highland Avenue
City of Fontana, San Bernardino County, California

In response to your request, Leighton Consulting, Inc. (Leighton) is providing an updated geotechnical letter for the proposed Fire Station No. 80 Training Center, located southeast of Cherry Avenue and South Highland Avenue, in the City of Fontana, San Bernardino County, California. The proposed improvements included an approximately 4,300-square-foot (SF) Training Classroom building, an approximately 3,750-SF, 5-story, Training Tower building, an approximately 10,400-SF Fire Station Building, and associated sitework.

Previously provided geotechnical recommendations (Leighton, 2022) remain applicable; however, seismic design methodologies were updated in the 2022 California Building Code (CBC) that went into effect on January 1, 2023. This letter presents updated seismic design parameters that should be utilized for design.

SEISMIC PARAMETERS

The site is anticipated to experience strong ground shaking after the proposed project is developed resulting from an earthquake occurring along one or more of the major active or potentially active faults in southern California. Accordingly, the project should be designed in accordance with all applicable current codes and standards utilizing the appropriate seismic design parameters to reduce seismic risk as defined by California Geological Survey (CGS) Chapter 2 of Special Publication 117a (CGS, 2008). Through compliance with these regulatory requirements and the utilization of appropriate seismic design parameters selected by the design professionals, potential effects relating to seismic shaking can be reduced.

The following parameters should be considered for design under the 2022 CBC:

| 2022 CBC Parameters (CBC or ASCE 7-16 reference) | Value 2022 CBC |
|---|-------------------|
| Site Latitude and Longitude: 34.1343, -117.4881 | |
| Site Class Definition (1613.2.2, ASCE 7-16 Ch 20) | C |
| Mapped Spectral Response Acceleration at 0.2s Period (1613.2.1), S_s | 1.907 g |
| Mapped Spectral Response Acceleration at 1s Period (1613.2.1), S_1 | 0.625 g |
| Short Period Site Coefficient at 0.2s Period (T1613.2.3(1)), F_a | 1.200 |
| Long Period Site Coefficient at 1s Period (T1613.2.3(2)), F_v | 1.400 |
| Adjusted Spectral Response Acceleration at 0.2s Period (1613.2.3), S_{MS} | 2.289 g |
| Adjusted Spectral Response Acceleration at 1s Period (1613.2.3), S_{M1} | 0.874* g |
| Design Spectral Response Acceleration at 0.2s Period (1613.2.4), S_{Ds} | 1.526 g |
| Design Spectral Response Acceleration at 1s Period (1613.2.4), S_{D1} | 0.583 g |
| Mapped MCE_G peak ground acceleration (11.8.3.2, Fig 22-9 to 13), PGA | 0.775 g |
| Site Coefficient for Mapped MCE_G PGA (11.8.3.2), F_{PGA} | 1.200 |
| Site-Modified Peak Ground Acceleration (1803.5.12; 11.8.3.2), PGA_M | 0.931 g |

Hazard deaggregation was estimated using the USGS Interactive Deaggregations utility. The results of this analysis indicate that the predominant modal earthquake has a magnitude of approximately 7.9 (M_w) at a distance on the order of 12.8 kilometers for the Maximum Considered Earthquake (2% probability of exceedance in 50 years), and corresponding peak ground acceleration of 0.95g.

CLOSING

We appreciate the opportunity to be of continued service to you. If you have any questions about our findings, please call us at your convenience at the phone extension and/or e-mail address listed below.

Respectfully submitted,

LEIGHTON CONSULTING, INC.



Jason D. Hertzberg
 Jason D. Hertzberg, GE 2711
 Principal Engineer
 Ext 8772, jhertzberg@leightongroup.com

AA/JDH/rsm

Attachments: References
 Seismic Parameters

Distribution: Addressee

REFERENCES

- California Building Standards Commission, 2022, 2022 California Building Code, California Code of Regulations, Title 24, Part 2, Volume 2 of 2, Based on 2021 International Building Code, Effective January 1, 2023.
- California Geologic Survey, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A, Revised and Re-Adopted on September 11, 2008, Laguna Beach, California.
- Leighton Consulting, Inc., 2022, Geotechnical Exploration Report, Proposed Fire Station No. 80 Training Center, Northeast Corner of Cherry Avenue and South Highland Avenue, City of Fontana, San Bernardino County, California, Project No. 13491.001, dated May 18, 2022.
- Office of Statewide Health Planning and Development (OSHPD) and Structural Engineers Association of California (SEAOC), 2025, Seismic Design Maps website: <https://seismicmaps.org>, accessed May 21, 2025.
- United States Geologic Survey (USGS), 2023, Earthquake Hazards Program, Unified Hazard Tool, website: <https://earthquake.usgs.gov/hazards/interactive>, accessed May 21, 2025.

Unified Hazard Tool



Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the [U.S. Seismic Design Maps web tools](#) (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Please also see the new [USGS Earthquake Hazard Toolbox](#) for access to the most recent NSHMs for the conterminous U.S. and Hawaii.

^ Input

Edition

Dynamic: Conterminous U.S. 2014 (u...

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

34.1343

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western longitudes

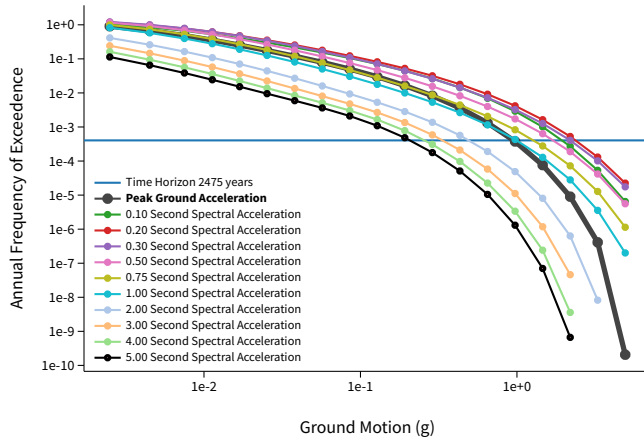
-117.4881

Site Class

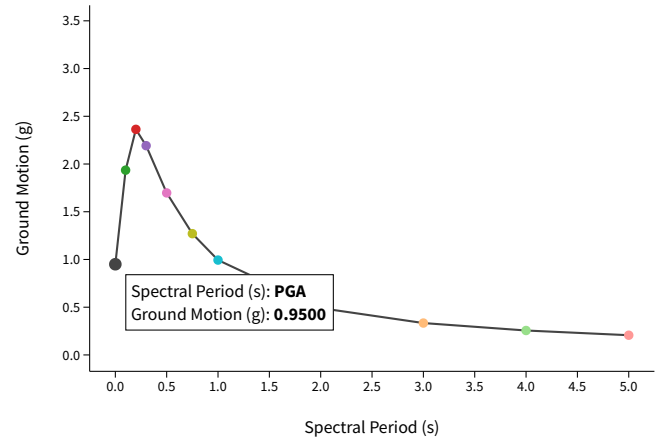
537 m/s (Site class C)

^ Hazard Curve

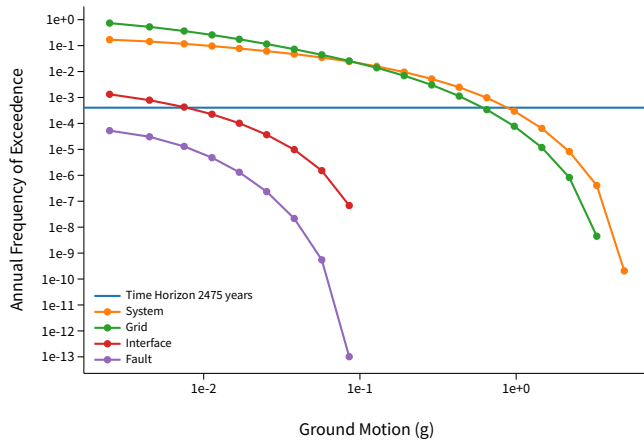
Hazard Curves



Uniform Hazard Response Spectrum



Component Curves for Peak Ground Acceleration

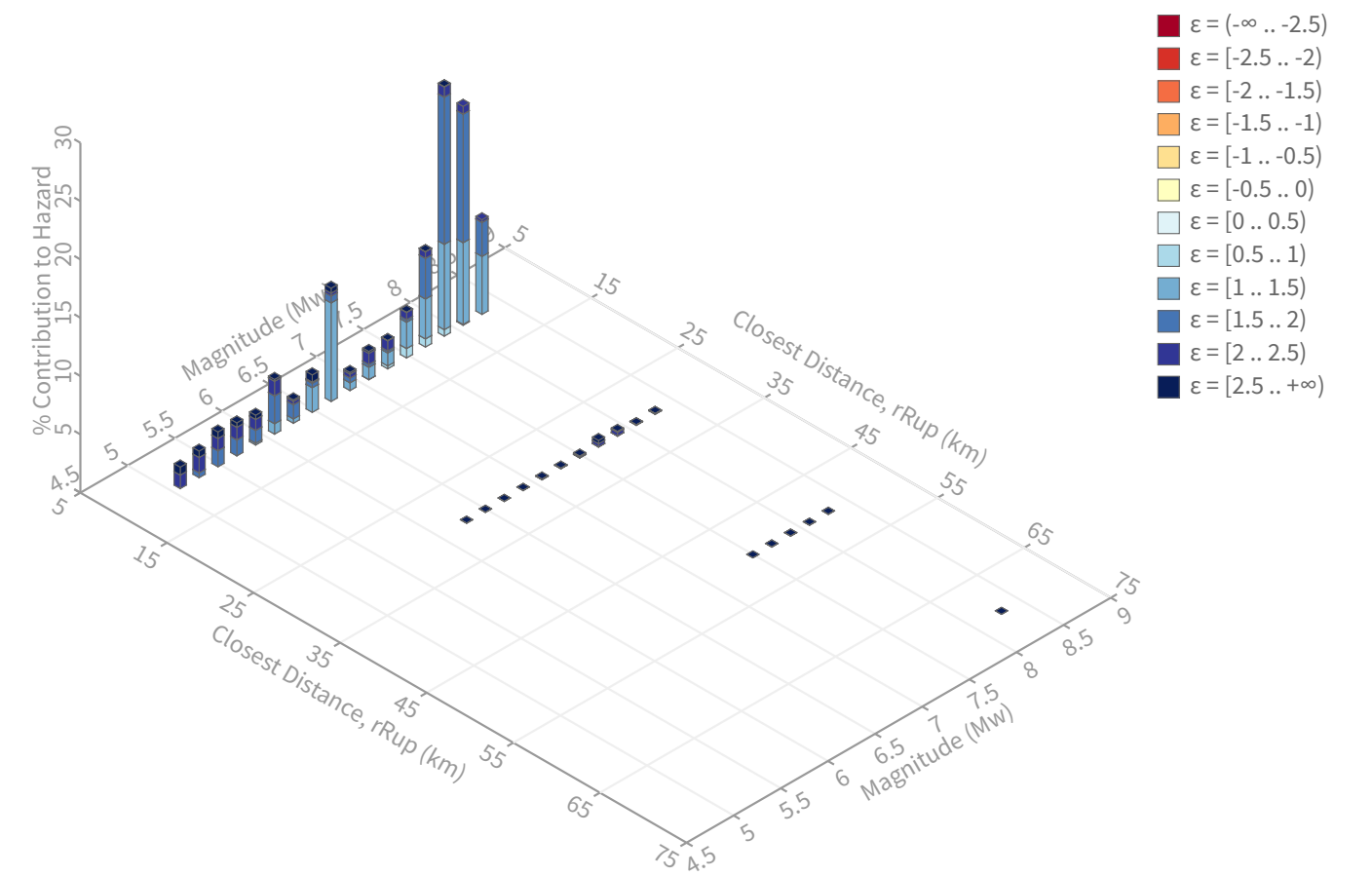


[View Raw Data](#)

^ Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr⁻¹
PGA ground motion: 0.95001234 g

Recovered targets

Return period: 3077.7435 yrs
Exceedance rate: 0.00032491336 yr⁻¹

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.05 %

Mean (over all sources)

m: 7.31
r: 9.32 km
ε₀: 1.64 σ

Mode (largest m-r bin)

m: 7.9
r: 10.19 km
ε₀: 1.56 σ
Contribution: 21.37 %

Mode (largest m-r-ε₀ bin)

m: 7.91
r: 12.8 km
ε₀: 1.76 σ
Contribution: 12.61 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

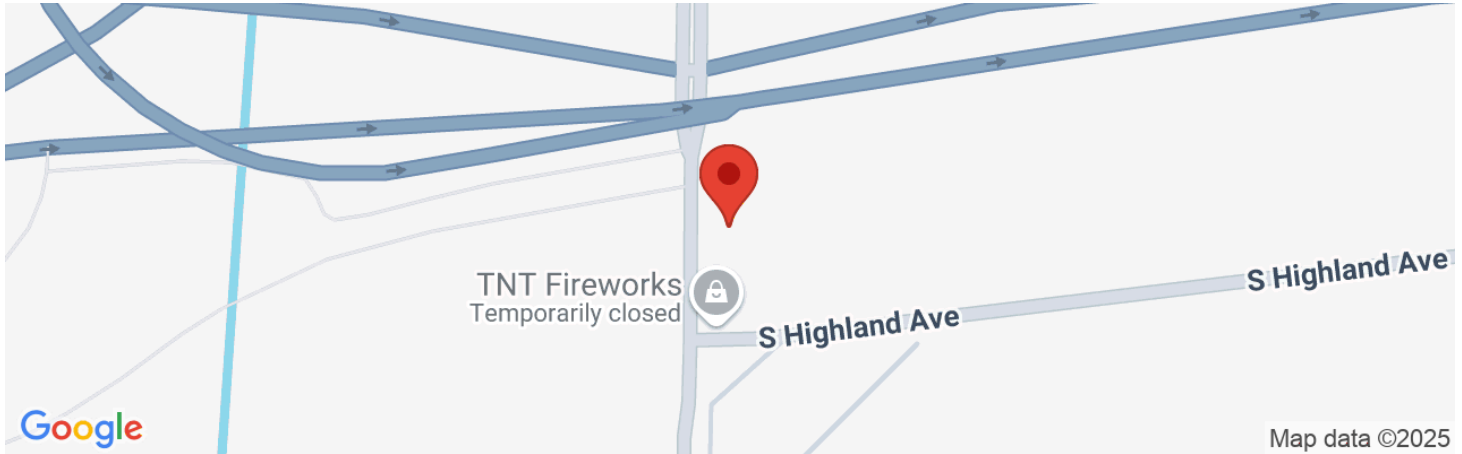
- ε0:** [-∞ .. -2.5)
- ε1:** [-2.5 .. -2.0)
- ε2:** [-2.0 .. -1.5)
- ε3:** [-1.5 .. -1.0)
- ε4:** [-1.0 .. -0.5)
- ε5:** [-0.5 .. 0.0)
- ε6:** [0.0 .. 0.5)
- ε7:** [0.5 .. 1.0)
- ε8:** [1.0 .. 1.5)
- ε9:** [1.5 .. 2.0)
- ε10:** [2.0 .. 2.5)
- ε11:** [2.5 .. +∞]

Deaggregation Contributors

| Source Set | ↳ Source | Type | r | m | ϵ_0 | lon | lat | az | % | |
|---|----------|--------|-------|------|--------------|-----------|----------|--------|-------|-------|
| UC33brAvg_FM31 | | System | | | | | | | | 40.65 |
| San Andreas (San Bernardino N) [2] | | | 14.25 | 7.85 | 1.91 | 117.395°W | 34.237°N | 36.78 | 11.33 | |
| San Jacinto (San Bernardino) [1] | | | 10.66 | 8.06 | 1.57 | 117.421°W | 34.212°N | 35.59 | 9.57 | |
| Cucamonga [0] | | | 5.10 | 7.57 | 1.18 | 117.490°W | 34.179°N | 357.61 | 8.02 | |
| Fontana (Seismicity) [0] | | | 4.59 | 6.61 | 1.24 | 117.455°W | 34.107°N | 135.17 | 5.07 | |
| San Jacinto (Lytle Creek connector) [1] | | | 6.86 | 8.03 | 1.28 | 117.438°W | 34.178°N | 43.48 | 3.74 | |
| UC33brAvg_FM32 | | System | | | | | | | | 39.52 |
| San Andreas (San Bernardino N) [2] | | | 14.25 | 7.86 | 1.91 | 117.395°W | 34.237°N | 36.78 | 11.53 | |
| San Jacinto (San Bernardino) [1] | | | 10.66 | 8.06 | 1.57 | 117.421°W | 34.212°N | 35.59 | 9.42 | |
| Cucamonga [0] | | | 5.10 | 7.60 | 1.18 | 117.490°W | 34.179°N | 357.61 | 8.00 | |
| Fontana (Seismicity) [0] | | | 4.59 | 6.61 | 1.24 | 117.455°W | 34.107°N | 135.17 | 4.15 | |
| San Jacinto (Lytle Creek connector) [1] | | | 6.86 | 8.02 | 1.29 | 117.438°W | 34.178°N | 43.48 | 3.64 | |
| UC33brAvg_FM31 (opt) | | Grid | | | | | | | | 9.92 |
| PointSourceFinite: -117.488, 34.166 | | | 6.26 | 5.65 | 1.83 | 117.488°W | 34.166°N | 0.00 | 2.52 | |
| PointSourceFinite: -117.488, 34.166 | | | 6.26 | 5.65 | 1.83 | 117.488°W | 34.166°N | 0.00 | 2.52 | |
| UC33brAvg_FM32 (opt) | | Grid | | | | | | | | 9.91 |
| PointSourceFinite: -117.488, 34.166 | | | 6.26 | 5.65 | 1.83 | 117.488°W | 34.166°N | 0.00 | 2.52 | |
| PointSourceFinite: -117.488, 34.166 | | | 6.26 | 5.65 | 1.83 | 117.488°W | 34.166°N | 0.00 | 2.52 | |



Latitude, Longitude: 34.1343, -117.4881



| | |
|--------------------------------|-----------------------|
| Date | 5/21/2025, 1:29:09 PM |
| Design Code Reference Document | ASCE7-16 |
| Risk Category | IV |
| Site Class | C |

| Type | Value | Description |
|----------|-------|--|
| S_S | 1.907 | MCE_R ground motion. (for 0.2 second period) |
| S_1 | 0.625 | MCE_R ground motion. (for 1.0s period) |
| S_{MS} | 2.289 | Site-modified spectral acceleration value |
| S_{M1} | 0.874 | Site-modified spectral acceleration value |
| S_{DS} | 1.526 | Numeric seismic design value at 0.2 second SA |
| S_{D1} | 0.583 | Numeric seismic design value at 1.0 second SA |

| Type | Value | Description |
|------------|-------|---|
| SDC | D | Seismic design category |
| F_a | 1.2 | Site amplification factor at 0.2 second |
| F_v | 1.4 | Site amplification factor at 1.0 second |
| PGA | 0.775 | MCE_G peak ground acceleration |
| F_{PGA} | 1.2 | Site amplification factor at PGA |
| PGA_M | 0.931 | Site modified peak ground acceleration |
| T_L | 12 | Long-period transition period in seconds |
| S_{sRT} | 2.066 | Probabilistic risk-targeted ground motion. (0.2 second) |
| S_{sUH} | 2.246 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration |
| S_{sD} | 1.907 | Factored deterministic acceleration value. (0.2 second) |
| S_{1RT} | 0.798 | Probabilistic risk-targeted ground motion. (1.0 second) |
| S_{1UH} | 0.889 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration. |
| S_{1D} | 0.625 | Factored deterministic acceleration value. (1.0 second) |
| $PGAd$ | 0.775 | Factored deterministic acceleration value. (Peak Ground Acceleration) |
| PGA_{UH} | 0.889 | Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration |
| C_{RS} | 0.92 | Mapped value of the risk coefficient at short periods |

| Type | Value | Description |
|-----------------|-------|---|
| C _{R1} | 0.897 | Mapped value of the risk coefficient at a period of 1 s |
| C _V | 1.281 | Vertical coefficient |

DISCLAIMER

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GEOTECHNICAL EXPLORATION
PROPOSED FIRE STATION NO. 80 TRAINING CENTER
NORTHEAST CORNER OF CHERRY AVENUE AND
SOUTH HIGHLAND AVENUE
CITY OF FONTANA, SAN BERNARDINO COUNTY
CALIFORNIA

Prepared For **PBK ARCHITECTS, INC.**
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, California 91730

Prepared By **LEIGHTON CONSULTING, INC.**
10532 Acacia Street, Suite B-6
Rancho Cucamonga, California 91730

Project No. 13491.001

May 18, 2022

May 18, 2022

Project No. 13491.001

PBK Architects, Inc.
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, California 91730

Attention: Mr. Kelley Needham

**Subject: Geotechnical Exploration
Proposed Fire Station No. 80 Training Center
Southeast of Cherry Avenue and South Highland Avenue
City of Fontana, San Bernardino County, California**

In accordance with our March 24, 2022 proposal, and your authorization on the same date, Leighton Consulting, Inc. (Leighton) has completed this geotechnical exploration in support of design of the new Fire Station No. 80 Training Center for the City of Fontana Fire Protection District, to be constructed southeast of Chery Avenue and South Highland Avenue, in the City of Fontana, California. The purpose of our exploration was to evaluate geologic hazards and geotechnical conditions of the site with respect to the proposed improvements and to provide geotechnical recommendations for design and construction of the proposed Fire Station No. 80 Training Center development.

This site is not located within a currently designated State of California Earthquake Fault Zone nor a fault zone identified by the County of San Bernardino, and no active faults have been mapped within or trending towards the project site. The site is located about 2.3 miles south of the Cucamonga fault zone and does not require a fault study. However, as is the case for most of southern California, strong ground shaking has and will occur at this site.

Based on this investigation, the proposed development of the fire station is feasible from a geotechnical standpoint. Significant geotechnical issues for this project include those related to the potential for strong seismic shaking and potentially compressible soils. Good planning and design of the project can limit the impacts of these constraints. This

report presents our findings, conclusions and geotechnical recommendations for the project.

We appreciate this opportunity to be of additional service to PBK Architects, Inc. If you have any questions or if we can be of further service, please contact us at your convenience at **866-LEIGHTON**, directly at the phone extensions or e-mail addresses listed below.

Respectfully submitted,

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1.0 INTRODUCTION

1.1 **Site Location and Description**

As depicted on Figure 1, *Site Location Map*, this proposed fire station training center site is located in the City of Fontana, San Bernardino County, California (latitude 34.1343° and longitude -117.4878°). The existing approximate 2.2-acre undeveloped site is mapped as Assessor Parcel Numbers (APN) 0228-021-46 by the County of San Bernardino. The proposed Fire Station No. 80 and training center buildings are planned to be constructed towards the western portion of the overall site and the proposed training tower is to be constructed towards the northeastern portion of the overall site. The site is bounded to the west by Cherry Avenue, to the south by South Highland Avenue, to the north by the Highland Channel, and the west by the Southern California Edison (SCE) easement, which includes overhead transmission lines, a transmission tower, and land previously used for agricultural purposes.

Based on our review of historical aerial imagery dating back to 1938 (NETR, 2022), the site has utilized for agricultural purposes up to present day and remained vacant with the exception of The Metropolitan Water District's 144-inch diameter Etiwanda Pipeline running through the eastern edge of the site, installed around approximately 1992 and the Highland Channel constructed between 1994 and 2002.

This site slopes gently towards the southwest to Cherry Avenue, from an approximately elevation of 1403 feet at the northeast most part of the site to approximately 1389 feet in the southwest corner.

1.2 **Proposed Fire Station No. 80 Training Center**

Based on the February 15, 2022, *City of Fontana Fire Station No. 80 and Training Center, Proposed Site Plan* prepared by PBK Architects Inc., the approximate 2.2-acre site will accommodate an approximate 4,300-square-foot (SF) Training Classroom building, an approximately 3,750-SF, 5-story, Training Tower building, and an approximately 10,400-SF Fire Station building. The site layout also includes associated visitor and secured parking, drives, electrical equipment enclosure, outdoor patio, a monument sign and flag, trash enclosure, a sliding security gate, perimeter walls, confined space training facilities, and landscaping.

At this time, structural loading of the proposed foundations has not been provided, but we assume the proposed building will be relatively lightly loaded, and we assume that the proposed building will have a concrete slab-on-grade, and will consist of reinforced masonry, wood and/or cold-formed steel stud construction.

1.3 **Purpose and Scope of Exploration**

Purpose of our exploration was to: (1) evaluate geotechnical conditions of the site of the proposed Fire Station No. 80 Training Center with respect to the proposed improvements, (2) identify significant geotechnical or geologic issues that would impact this proposed building, and (3) provide geotechnical recommendations for design and construction of proposed building and associated improvements as currently planned. In accordance with our March 24, 2022 proposal, the scope of our exploration included the following:

- **Research:** We reviewed readily available geotechnical literature, reports and aerial photographs relevant to this site. Pertinent geotechnical documents are referenced at the end of this report text.
- **Field Exploration:** On April 7, 2022, seven (7) hollow-stem auger borings were drilled with a truck-mounted rig, logged and sampled to depths ranging from approximately 11½ feet to 51½ feet below the existing ground surface. Water infiltration testing was performed on two borings (IT-1 and IT-2). After sampling, logging, and testing, all borings were immediately backfilled. Approximate boring locations are depicted on Figure 2, *Geotechnical Map*. Descriptions of encountered soil conditions are presented in our boring logs in Appendix A, *Field Exploration*.
- **Geotechnical Laboratory Testing:** Geotechnical laboratory tests were conducted on selected relatively undisturbed and bulk soil samples obtained during our field exploration. Our laboratory testing program was designed to evaluate engineering characteristics of onsite soils. A description of test procedures and results are presented in Appendix B, *Geotechnical Laboratory Testing*.
- **Engineering and Geologic Analysis:** Data obtained from field exploration and geotechnical laboratory testing were evaluated and analyzed to develop geotechnical conclusions and provide recommendations in general accordance with the California Geological Survey (CGS) Note 48.
- **Report Preparation:** Results of our geologic hazards review and geotechnical exploration have been summarized in this report, presenting our findings, conclusions and preliminary geotechnical design recommendations.

This report does not address the potential for encountering hazardous materials in site soils or within groundwater. Important information about limitations of geotechnical reports in general, is presented in Appendix D, *GBA's Important Information About This Geotechnical-Engineering Report*.

2.0 FINDINGS

2.1 **Geologic Hazards Review**

We have reviewed pertinent, readily available geologic and geotechnical literature covering the site. Our review included regional geologic maps and reports available from our library and online. Documents reviewed are listed in Appendix A, *References*. Potential geologic hazards are discussed in the following sections. Our review has considered California Geological Survey's Note 48, *Checklist of the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings*.

2.2 **Regional Geologic Setting**

The site is located on a gently sloping alluvial plain descending southward from the San Gabriel Mountains. This area is within the Chino Basin in the northern portion of the Peninsular Ranges geomorphic province of California. Major structural features surrounding the region include the Cucamonga Fault and the San Gabriel Mountains to the north, the inferred Fontana Seismic Trend to the southeast, and the San Jacinto Fault to the east. The region is an area of large-scale crustal disturbance as the relatively northwestward-migrating Peninsular Ranges Province interacts with the Transverse Ranges Province (which includes the San Gabriel Mountains) to the north. Several active or potentially active faults have been mapped in the region and are believed to accommodate compression and lateral displacement associated with this crustal interaction. The site is located approximately 2.3 miles south of the active Cucamonga Fault Zone, which accommodates uplift that forms the steep escarpment of the San Gabriel Mountains to the north relative to the basin floor to the south.

This site region is underlain by a thick accumulation of young alluvial fan deposits (Morton et al., 2001), which have been mapped to consist of gravel and sand deposits (Dibblee and Minch, 2003) eroded and transported from the San Gabriel Mountains and deposited in the site vicinity.

2.3 **Subsurface Soil Conditions**

Based upon our review of existing geotechnical literature (*References*) and our subsurface exploration (Appendix A), undocumented fill (Afu) placed by previous agricultural activities were observed at the site and underlain by Quaternary young alluvial fan deposits (Qyf).

Undocumented Artificial Fill (Afu): Undocumented artificial fill presumably placed during previous agricultural activities was observed at the surface of the site and was encountered to depths of approximately 1 to 2 feet below the current surface overlying alluvium. The undocumented artificial fill encountered in our borings was characterized as relatively dry to slightly moist, loose silty sand with minor gravel. During grading, dry and/ or loose undocumented fill in site vicinity may be uncovered to be locally deeper or shallower than currently estimated. More detailed descriptions of subsurface soils encountered are presented on our boring logs in Appendix A.

Quaternary Young Alluvial Fan Deposits (Qyf): Young alluvial fan deposits have been mapped (Morton et al., 2001) underlying undocumented artificial fill in the site vicinity. Alluvium encountered in our exploratory borings was observed to be moist and dense to very dense sand, gravel and cobbles. Boulders were not encountered during our subsurface exploration with small-diameter borings, though give the cobbly nature of the soils, boulders could be present.

2.4 Groundwater

Groundwater was not encountered in any of our borings drilled to a maximum depth of 51½ feet below the existing ground surface (bgs) on April 7, 2022. To research groundwater levels at this site, we obtained groundwater level data from the California Department of Water Resources (CDWR, 2022a) Groundwater Management Act Data Viewer website from a Chino Basin Watermaster managed well (Well ID Chino-1223006) located approximately 1.6 miles southwest of the site. Well data from this location ranged in date from 2011 through 2021 and indicated the shallowest groundwater measurement to be at an elevation of 723 feet above mean sea level (MSL) that correlates to a depth no shallower than 665 feet below the site's lowest surface. We also reviewed Geohydrology Maps of the Chino-Riverside Area (CDWR, 1970) dating back to 1933, in which the area site is mapped in an area with closest groundwater elevations contours ranging from 1,000 to 1,100 above mean sea level, that correlates to a depth no shallower than approximately 289 feet below the site's lowest surface.

Based on the data collected, groundwater is not expected to be a significant constraint for development nor is anticipated to be encountered during construction activities for the proposed fire station training center.

2.5 **Faulting and Seismicity**

Southern California is a seismically active area. As such, the site will be subject to seismic hazards from numerous sources in the area. The severity of potential seismic hazards is related to site-specific geology, distances from seismic sources, and the magnitude of earthquake events. Principal seismic hazards evaluated on a site-specific basis included: potential for surface rupture along active or potentially active fault traces, magnitude of seismic shaking, and the susceptibility to ground failure (liquefaction, lurching, and seismically induced landslides). The potential for fault rupture and seismic shaking are discussed below.

2.5.1 Surface Faulting Fault classification criteria adopted by the California Geological Survey, formerly the California Division of Mines and Geology, defines Earthquake Fault Zones along active or potentially active faults. The California Alquist-Priolo Earthquake Fault Zoning Act of 1972 classification system is used in this report, as follows:

- **Active:** An active fault is one that has ruptured within the Holocene epoch (the last 11,700 years).
- **Potentially Active:** A fault that has ruptured during the last 1.8 million years (Quaternary period), but has not been proven by direct evidence to have not moved within the Holocene epoch is considered to be potentially active.
- **Inactive:** A fault that has not moved during both Pleistocene and Holocene epochs (that is, no movement within the last 1.8 million years) is considered to be inactive.

Based on our review of available in-house literature, and as depicted on Figure 4, *Regional Faults and Historic Seismicity Map*, there are no currently known active surface faults that traverse or trend towards this site. Additionally, this site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (CGS, 2022), or a fault zone delineated by the County (County of San Bernardino, 2007) or City (City of Fontana, 2018).

The closest known active or potentially active faults are the Cucamonga fault located approximately 2.3 miles north of the site, and the Fontana fault located 2.8 miles southeast of the project site. The known regional active or potentially active faults that could produce the most significant ground shaking at the site include the San Jacinto (San Bernardino), San Andreas, Cucamonga, San Jacinto (Lytle Creek), and the fault related to the Fontana seismic trend. Nearby faults are depicted in Figure 4 – *Regional Fault and Historical Seismicity Map*.

2.5.2 Seismicity (Ground Shaking): A principal seismic hazard that could impact this site is ground shaking resulting from an earthquake occurring along several major active or potentially active faults throughout southern California. An evaluation of historical seismicity from significant past earthquakes related to the site was performed. Plotted on Figure 4, *Regional Fault and Historic Seismicity Map*, are epicenters of historic earthquakes (1769 through 2016) in and around Fontana, color coded as a function of magnitude. Based on this map, it appears that the site has been exposed to relatively significant seismic events; however, this site does not appear to have experienced more severe seismicity that compared to much of southern California in general. We are unaware of documentation indicating that past earthquake damage in the site vicinity has been significantly worse than for the majority of southern California. In addition, we are unaware of damage in the site vicinity as the result of liquefaction, lateral spreading, or other related phenomenon.

2.6 Secondary Seismic Hazards

In general, secondary seismic hazards for sites in this region could include soil liquefaction, earthquake-induced settlement, slope instability and landslides, earthquake-induced seiches and tsunamis flooding. Site-specific potential for secondary seismic hazards is discussed in the following subsections:

2.6.1 Liquefaction Potential: Liquefaction is the loss of soil strength due to a buildup of excess pore-water pressure during strong and long-duration ground shaking. Liquefaction is associated primarily with loose (low density), saturated, relatively uniform fine- to medium-grained, clean cohesionless soils. As shaking action of an earthquake progresses, soil granules are rearranged and the soil densifies within a short period. This rapid densification of soil results in a buildup of pore-water pressure. When the pore-water pressure approaches the total overburden pressure, soil shear strength reduces abruptly and temporarily behaves similar to a fluid. For liquefaction to occur there must be:

- (1) loose, clean granular soils,
- (2) shallow groundwater, **and**
- (3) strong, long-duration ground shaking

The State of California has not prepared a map delineating zones of liquefaction potential for the quadrangle that contains the site. The San Bernardino County Land Use Plan - Geologic Hazards Overlays for the Devore Quadrangle (SBC, 2010) has mapped this area outside a zone of liquefaction potential. No groundwater was encountered during our exploration to explored depths of 51 ½ feet bgs, and collected data indicated

that groundwater depths at and near this site have been historically greater than approximately 289 feet deep beneath the site. In addition, encountered alluvial soils onsite were generally medium dense to very dense within our borings. Based on the absence of shallow groundwater and the dense nature of the onsite soils, liquefaction is unlikely to occur at the site.

2.6.2 Lateral Spreading: Lateral spreading is unlikely to occur at the site due to the lack of liquefaction potential and lack of significant topographic relief at and around this site.

2.6.3 Seismically Induced Settlement: During a strong seismic event, non-liquefaction, seismically induced settlement can occur within loose and dry granular soils. Settlement caused by ground shaking is often unevenly distributed, which can result in differential settlement. Fill soils are typically highly susceptible to seismically induced settlement. Undocumented fill soils under the proposed building footprint are recommended (discussed later in this report) to be recompacted to mitigate dynamic settlement concerns.

We have performed analyses to estimate the potential for seismically induced settlement using the method of Tokimatsu and Seed (1987), and based on Martin and Lew (1999), considering the maximum considered earthquake (MCE) peak ground acceleration ($PGAM$). The results of our analyses suggested that the onsite soils are susceptible to less than 1 inch of seismic settlement based on the MCE. Differential settlement due to seismic loading is assumed to be less than $\frac{1}{2}$ inch over a horizontal distance of 40 feet based on the MCE. A summary of seismic settlement analysis is included in Appendix C.

2.6.4 Slope Instability and Landslides: Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The State of California has not prepared a map delineating zones of landslide potential for the quadrangle that contains the site. The County of San Bernardino for the Devore Quadrangle have mapped this area to be outside a zone of landslide potential. The site and vicinity are gently sloping. The potential for seismically induced landslide activity is considered negligible for this site due to the lack of significant slopes.

2.6.5 Earthquake-Induced Seiches and Tsunamis: Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Tsunamis are predominately ocean waves generated by undersea large magnitude fault displacement or major ground movement.

Based on separation of the site from any enclosed body of water, there is no seiche impact at the site. Also, due to average site elevation of -feet above mean sea level and the inland location of this site relative to the Pacific

Ocean tsunami risks at this site is nil.

2.6.6 Earthquake-Induced Inundation: This inundation hazard is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. Figure 5, *Dam Inundation Map*, shows an area of dam breach inundation approximately 3,500 feet northwest of the site. The subject site is not mapped within a dam breach inundation zone.

2.7 Storm-Induced Flood Hazard

As depicted on Figure 6, *Flood Hazard Zone Map*, this site is not mapped within a “100-year” or “500-year” flood zone as defined by the Federal Emergency Management Agency’s (FEMA’s) Flood Insurance Rate Map (FIRM).

2.8 Infiltration Testing

Infiltration testing was conducted within two of our borings onsite (IT-1 and IT-2) to estimate the infiltration characteristics of the onsite soils at the depths and locations tested. The infiltration testing was conducted at a bottom test zone depth of approximately 10 feet below the existing ground surface within native soils.

Well permeameter tests are useful for field measurements of soil infiltration rates, and are suited for testing when the design depth of the basin or chamber is deeper than current existing grades. It should be noted that this is a clean-water, small-scale test, and that correction factors need to be applied. A test consists of excavating a boring to the depth of the test (or deeper as long as it is partially backfilled with soil and a bentonite plug with a thin soil covering is placed just below the design test elevation). A layer of clean sand or gravel is then placed in the boring bottom to temporarily support a perforated well casing pipe system. Once the well casing pipe has been installed, coarse sand or gravel is poured in the annular space outside of the well casing within the test zone to prevent the boring from caving/collapsing or spalling when water is added. Water is added into the boring to an initial water height, as water within the boring infiltrates into the soil, measurements are taken of the height of the water column within the boring at equally timed intervals (known as a falling head test). The infiltration rate as measured during intervals of the test is defined as the flow rate of water infiltrated, divided by the surface area of the infiltration interface. The test was conducted based on the USBR 7300-89 test method.

Raw infiltration rates for the well permeameter test yielded rates of 10 and 6 inches/hour within borings IT-1 and IT-2, respectively within the native soils.

Results of infiltration testing are provided in Appendix B. Further discussion of infiltration testing and related recommendations are included in Section 3.9.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 **Conclusions**

This site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone delineated for surface fault rupture hazards. However, as is the case for most of southern California, strong ground shaking has and will occur at this site. Historical groundwater levels are on the order of approximately 289 feet below the surface or deeper based on available well data. Encountered native site soils were medium dense to very dense sands and gravels. Due to the lack of groundwater and dense condition of native soils, liquefaction is highly unlikely to occur at this site. Near-surface soils have very low expansion potential.

3.2 **Recommendations Summary**

We are unaware of any fill placement documentation for this site. Based upon our geotechnical exploration and analysis, all existing undocumented fill soil and compressible native alluvium soils within the proposed building footprint should be excavated and recompacted to provide more uniform shallow foundation support. In any case, overexcavation should extend at least 3.5 feet below existing grade, or at least 2 feet below proposed footings, whichever is deeper, within building footprints. The proposed fire station can be founded on conventional spread footings bearing solely on a zone of newly excavated and recompacted fill soils derived from onsite soils, overlying solely undisturbed native soils.

Geotechnical recommendations for the proposed Fire Station 80 Training Center site are presented in the following subsections.

3.3 **Earthwork**

Project earthwork is expected to include overexcavation and recompaction of undocumented fill soils and onsite alluvium soils below the proposed new building footprint as described in the following subsections:

- 3.3.1 Earthwork Observation and Testing:** Leighton should observe and test all grading and earthwork to check that the site has been properly prepared, to assess that selected fill materials are satisfactory, and to evaluate that placement and compaction of fills has been performed in accordance with our recommendations and the project specifications. Any imported soil or aggregate material to be evaluated for its suitability as onsite fill material should be submitted to a Leighton geotechnical laboratory at least two

working days in advance of earth material placement and compaction. Project plans and specifications should incorporate recommendations contained in the text of this report.

Variations in site conditions are possible and may be encountered during construction. To confirm correlation between soil data obtained during our field and laboratory testing and actual subsurface conditions encountered during construction, and to observe conformance with approved plans and specifications, we should be retained to perform continuous or intermittent review during earthwork, excavation and foundation construction phases. Conclusions and recommendations presented in this report are contingent upon construction geotechnical observation services.

3.3.2 Surface Drainage: Water should not be allowed to pond or accumulate anywhere except in approved drainage areas, which should be set back at least 15 feet from proposed structures. Pad drainage should be designed to collect and direct surface water away from structures to approved drainage facilities. Hardscape drains should be installed and drain to storm water disposal systems. Drainage patterns and drainpipes approved at the time of fine grading should be maintained throughout the life of proposed structures. Percolation or stormwater infiltration should not be allowed within at least horizontal 15 feet of the proposed Fire Station 80 Training Center buildings.

3.3.3 Site Preparation: Prior to construction, the site should be cleared of vegetation, trash and debris, which should be disposed of offsite. Any underground obstructions should be removed. Resulting cavities should be properly backfilled and compacted. Efforts should be made to locate existing utility lines. Those lines should be removed or rerouted if they interfere with the proposed construction, and the resulting cavities should be properly backfilled and compacted.

Based on encountered site conditions, we recommend that all fill and native soils should be excavated from the proposed building footprint, down at least 2 feet below the bottoms of proposed footings or at least 3.5 feet below existing grade, whichever is deeper. Undocumented fill was not encountered deeper than 3 feet in the exploratory borings performed for this study, though should be removed if encountered. Overexcavation bottoms should extend horizontally either the thickness of fill below spread footings or at least 5 feet horizontally beyond the outside edges of proposed building perimeter

footings, whichever is greater, encompassing the whole new building footprint, including attached columns. Any underground obstructions encountered should be removed. Efforts should be made to locate any existing utility lines. Those lines should be removed or rerouted where interfering with proposed construction.

Areas outside proposed building footprint limits, planned for asphalt and/or concrete pavement, should be overexcavated to a minimum depth of 18 inches below existing or finish grade, or 12 inches below proposed pavement sections; whichever is deeper.

Resulting removal excavation bottom surfaces should be observed by Leighton prior to placement of any backfill or new construction. It is essential that all existing fill soils be excavated from the proposed building footprints, regardless of depth. After overexcavations are completed and prior to fill placement, exposed surfaces should be scarified to a minimum depth of 6 inches, moisture conditioned to 2 percent above optimum moisture content, and recompacted to a minimum 90 percent relative compaction as determined by ASTM D1557 standard test method (modified Proctor compaction curve).

3.3.4 Fill Placement and Compaction: Onsite soils free of organics and debris are suitable for use as compacted structural fill provided it is free of oversized material greater than 8 inches in its largest dimension. However, any soil to be placed as fill, whether onsite or imported material, should be first viewed by Leighton and then tested if and as necessary, prior to approval for use as compacted fill. All structural fill should be free of hazardous materials.

All fill soil should be placed in thin, loose lifts, moisture-conditioned, as necessary, to within 3 percent above optimum moisture content, and compacted to a minimum 90% relative compaction as determined by ASTM D1557 standard test method (modified Proctor compaction curve) within the building footprint. Aggregate base for pavement sections should be compacted to a minimum of 95% relative compaction.

3.3.5 Shrinkage or Bulking: The change in volume of excavated and recompacted soil varies according to soil type and location. This volume change is represented as a percentage increase (bulking) or decrease (shrinkage) in volume of fill after removal and recompaction. Subsidence

occurs as in-place soil (e.g., natural ground) is moisture-conditioned and densified to receive fill, such as in processing an overexcavation bottom. Subsidence is in addition to shrinkage due to recompaction of fill soil. Field and laboratory data used in our calculations included laboratory-measured maximum dry densities for soil types encountered at the subject site, the measured in-place densities of soils encountered, sampling blow counts, and our experience. We preliminarily estimate the following earth volume changes will occur during grading:

| Shrinkage and Subsidence | |
|--|--------------------------------|
| Shrinkage | Approximately 10 +/- 5 percent |
| Subsidence (overexcavation bottom processing) | Approximately 0.1 foot |

The level of fill compaction, variations in the dry density of the existing soils and other factors influence the amount of volume change. Some adjustments to earthwork volume should be anticipated during grading of the site.

3.4 **Seismic Design Parameters**

The site will experience strong ground shaking after the proposed project is developed resulting from an earthquake occurring along one or more of the major active or potentially active faults in southern California. Accordingly, the project should be designed in accordance with all applicable current codes and standards utilizing the appropriate seismic design parameters to reduce seismic risk as defined by California Geological Survey (CGS) Chapter 2 of Special Publication 117a (CGS, 2008). Through compliance with these regulatory requirements and the utilization of appropriate seismic design parameters selected by the design professionals, potential effects relating to seismic shaking can be reduced.

The following parameters should be considered for design under the 2019 CBC:

Table 1 . 2019 CBC Site-Specific Seismic Parameters

| 2019 CBC Parameters (CBC or ASCE 7-16 reference) | Value 2019 CBC |
|---|-------------------|
| Site Latitude and Longitude: 34.1343, -117.4881 | |
| Site Class Definition (1613.2.2, ASCE 7-16 Ch 20) | C |
| Mapped Spectral Response Acceleration at 0.2s Period (1613.2.1), S_s | 1.907 g |
| Mapped Spectral Response Acceleration at 1s Period (1613.2.1), S_1 | 0.625 g |
| Short Period Site Coefficient at 0.2s Period ($T_{1613.2.3(1)}$), F_a | 1.2 |
| Long Period Site Coefficient at 1s Period ($T_{1613.2.3(2)}$), F_v | 1.4 |
| Adjusted Spectral Response Acceleration at 0.2s Period (1613.2.3), S_{MS} | 2.288 g |
| Adjusted Spectral Response Acceleration at 1s Period (1613.2.3), S_{M1} | 0.875 g |
| Design Spectral Response Acceleration at 0.2s Period (1613.2.4), S_{DS} | 1.526 g |
| Design Spectral Response Acceleration at 1s Period (1613.2.4), S_{D1} | 0.583 g |
| Mapped MCE_G peak ground acceleration (11.8.3.2, Fig 22-9 to 13), PGA | 0.775 g |
| Site Coefficient for Mapped MCE_G PGA (11.8.3.2), F_{PGA} | 1.100 |
| Site-Modified Peak Ground Acceleration (1803.5.12; 11.8.3.2), PGA_M | 0.93 g |

Hazard deaggregation was estimated using the USGS Interactive Deaggregations utility. The results of this analysis indicate that the predominant modal earthquake has a magnitude of approximately 7.9 (M_w) at a distance on the order of 10.6 kilometers for the Maximum Considered Earthquake (2% probability of exceedance in 50 years).

3.5 Foundations

Based on our preliminary exploration and our experience in the region, conventional shallow spread footings may be used to support the proposed buildings. Anticipated foundation loads were not available during preparation of this report. We assumed maximum column dead loads up to (\leq) 50 kips and wall loads of 3 kips per lineal foot for our preliminary foundation recommendations. Overexcavation and recompaction of footing subgrade soils should be performed as detailed in Section 3.3 of this report. Specific foundation recommendations are presented below:

- 3.5.1 Minimum Embedment and Width:** Based on our preliminary exploration, footings for this proposed building should have a minimum embedment of 18 inches below lowest adjacent exterior grade or interior finished grade; whichever is deeper/lower. Minimum footings widths should be at least 24

inches for isolated rectangular column footings or 12 inches for continuous bearing wall (strip) footings.

- 3.5.2 Allowable Bearing Capacity:** A net allowable bearing capacity of 2,500 pounds per square foot (psf) may be used for design, based on an assumed embedment depth of 18 inches and minimum width described above. This allowable bearing value may be increased by 250 psf per foot increase in embedment depth and/or width to a maximum allowable bearing pressure of 4,000 psf, and are for total dead load and sustained live loads, which can be increased by one-third when considering short-duration wind or seismic loads. Footing reinforcement should be designed by the project Structural Engineer.
- 3.5.3 Lateral Load Resistance:** Soil resistance available to withstand lateral loads on a shallow foundation is a function of the frictional resistance along the base of the footing and the passive resistance that may develop as the face of the structure tends to move into the soil. The frictional resistance between the base of the foundation and the subgrade soil may be computed using a coefficient of friction of 0.4. The passive resistance may be computed using an equivalent fluid pressure of 290 pounds per cubic foot (pcf), assuming there is constant contact between the footing and undisturbed soil. These friction and passive values have already been reduced by a factor of safety of 1.5, and can be increased by one third when considering short-duration wind or seismic loads. For spread footings and slabs-on-grade bearing on properly compacted fill over undisturbed native soils, full friction and passive resistance can be combined to resist lateral loads; although some lateral displacement is required to mobilize full passive resistance.
- 3.5.4 Settlement Estimates:** The above recommended allowable bearing capacity is generally based on a total allowable, post-construction total settlement of 1 inch, for column loads and wall loads not exceeding 50 kips and 3 kips per foot, respectively, for dead plus sustained live loads. Differential settlement due to static loading is generally estimated at $\frac{1}{2}$ inch over a horizontal distance of 30 feet. Once developed by the Structural Engineer, we can review total dead and sustained live loads for each column including plan location and span distance, to evaluate if differential settlements between dissimilarly loaded columns will be tolerable. Excessive differential settlement can be mitigated with the use of reduced bearing pressures, deeper footing embedment, possibly changing overexcavation schemes and using imported base material under spread footings, or possibly other methods. Assuming all

existing fill soils are properly recompacted below these buildings, dynamic differential settlement in dense sands is expected to be negligible.

3.6 **Concrete Slab-On-Grade**

Concrete slabs-on-grade should be designed by the structural engineer in accordance with 2019 CBC requirements. More stringent requirements may be required by the structural engineer and/or architect; however, slabs-on-grade should have the following minimum recommended components:

- **Subgrade:** Slab-on-grade subgrade soil should be moisture conditioned to or within 2% over optimum moisture content, to a minimum depth of 18 inches within building footprints, and compacted to 95% of the modified Proctor (ASTM D1557) laboratory maximum density prior to placing either a moisture barrier, steel and/or concrete.
- **Moisture Barrier:** A moisture barrier consisting of 15-mil-thick Stego-wrap vapor barriers (see: http://www.stegoindustries.com/products/stego_wrap_vapor_barrier.php), or equivalent, should be placed below slabs where moisture-sensitive floor coverings or equipment will be placed.
- **Reinforced Concrete:** A conventionally reinforced concrete slab-on-grade with a thickness of at least 4 inches should be placed in pedestrian areas without heavy loads. Reinforcing steel should be designed by the structural engineer, but as a minimum should be No. 4 rebar placed at 18 inches on-center, each direction (perpendicularly), mid-depth in the slab. A modulus of subgrade reaction (k) as a linear spring constant, of 175 pounds per square inch per inch deflection (pci) can be used for design of heavily loaded slabs-on-grade, assuming a linear response up to deflections on the order of $\frac{3}{4}$ inch.
- **Slab-On-Grade Control Joints:** Slab-on-grade crack control joint locations and spacing should be designed by the project Structural Engineer (SE).

Minor cracking of concrete after curing due to drying and shrinkage is normal and should be expected. However, cracking is often aggravated by a high water-to-cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low-slump concrete or low water/cement ratios can reduce the potential for shrinkage cracking.

3.7 Sulfate Attack and Ferrous Corrosion Protection

3.7.1 Sulfate Exposure: Sulfate ions in the soil can lower the soil resistivity and can be highly aggressive to Portland cement concrete by combining chemically with certain constituents of the concrete, principally tricalcium aluminate. This reaction is accompanied by expansion and eventual disruption of the concrete matrix. A potentially high sulfate content could also cause corrosion of reinforcing steel in concrete. Section 1904A of the 2019 California Building Code (CBC) defers to the American Concrete Institute's (ACI's) ACI 318-14 for concrete durability requirements. Table 19.3.1.1 of ACI 318-14 lists "*Exposure categories and classes*," including sulfate exposure as follows:

Table 2. Sulfate Concentration and Exposure

| Soluble Sulfate in Water (parts-per-million) | Water-Soluble Sulfate (SO ₄) in soil (percentage by weight) | ACI 318-14 Sulfate Class |
|--|---|--------------------------|
| 0-150 | 0.00 - 0.10 | S0 (negligible) |
| 150-1,500 | 0.10 - 0.20 | S1 (moderate*) |
| 1,500-10,000 | 0.20 - 2.00 | S2 (severe) |
| >10,000 | >2.00 | S3 (very severe) |

*or seawater

3.7.2 Ferrous Corrosivity: Many factors can modify corrosion potential of soil including soil moisture content, resistivity, permeability and pH, as well as chloride and sulfate concentration. In general, soil resistivity, which is a measure of how easily electrical current flows through soils, is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled "*Effects of Soil Characteristics on Corrosion*" (February 1989), the approximate relationship between soil resistivity and soil corrosiveness was developed as follows:

Table 3. Soil Resistivity and Soil Corrosivity

| Soil Resistivity (ohm-cm) | Classification of Soil Corrosiveness |
|---------------------------|--------------------------------------|
| 0 to 900 | Very Severely Corrosive |
| 900 to 2,300 | Severely Corrosive |
| 2,300 to 5,000 | Moderately Corrosive |
| 5,000 to 10,000 | Mildly Corrosive |
| 10,000 to >100,000 | Very Mildly Corrosive |

Acidity is an important factor of soil corrosivity. The lower the pH (the more

acidic the environment), the higher the soil corrosivity will be with respect to buried metallic structures and utilities. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures, due to protective surface films, which form on steel in high pH environments. A pH between 5 and 8.5 is generally considered relatively passive from a corrosion standpoint. Chloride and sulfate ion concentrations, and pH appear to play secondary roles in modifying corrosion potential. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried steel or reinforced concrete structures.

3.7.3 Corrosivity Test Results: To evaluate corrosion potential of soils sampled from this site, we tested a bulk soil sample for soluble sulfate content, soluble chloride content, pH and resistivity. Results of these tests are summarized below:

Table 4. Results of Corrosivity Testing

| Locations | Sample Depth (feet) | Sulfate (ppm) | Chloride (ppm) | pH | Minimum Resistivity (ohm-cm) |
|-------------|---------------------|---------------|----------------|------|------------------------------|
| Boring LB-1 | 0 - 5 | 128 | 80 | 6.71 | 4,450 |

Note: mg/kg = milligrams per kilogram, or parts-per-million (ppm)

These results are discussed as follows:

- Sulfate Exposure:** Based on Table 19.3.1.1 of ACI 318-14, in our opinion, sulfate exposure should be considered “negligible” with an Exposure Class S0 for native soils sampled at the site. Based on Table 19.3.2.1 of ACI 318-14, for this Exposure Category S0, there would be no restrictions on cement type (“cementitious material”) nor water/cement ratio, and an f'_c (28-day compressive strength) of at least 2,500 pounds per square inch (psi) is required at a minimum for structural concrete.
- Ferrous Corrosivity:** As shown above, minimum soil resistivity of 4,450 ohm-centimeters was measured in our laboratory test. In our opinion, it appears for site soils that corrosion potential to buried steel may be characterized as “moderately corrosive” at the site. Ferrous pipe buried in moist to wet site earth materials should be avoided by using high-density polyethylene (HDPE) or other non-ferrous pipe when possible. Or ferrous pipe can be protected by polyethylene bags, tap or coatings, di-electric fittings or other means to separate the pipe from on-site earth materials.

3.8 Pavement Section Design

Based on design procedures outlined in the current Caltrans *Highway Design Manual* and a maximum design R-value of 50 for compacted onsite subgrade

soils, preliminary flexible pavement sections were calculated for the Traffic Indices (TIs) tabulated, and are listed below:

Table 5. Hot Mixed Asphalt (HMA) Pavement Sections

| Assumed Traffic Index | Asphalt Concrete (inches) | Class 2 Aggregate Base (inches) |
|--|---------------------------|---------------------------------|
| 5 or less (auto access) | 3.0 | 4.0 |
| 7.0 (truck/60-000-lb apparatus access) | 4.0 | 4.0 |

Undistributed apparatus outrigger loads could cause local asphalt pavement punching damage. When possible, outrigger loads should be distributed over asphalt pavements with planks and plywood. Otherwise, areas where outrigger loads are anticipated could be paved with 8-inch-thick concrete as described below.

Portland cement concrete (PCC) pavement sections were calculated in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for two Traffic Indices (TIs) are presented below:

Table 6. Portland Cement Concrete Pavement Sections

| Assumed Traffic Index | PC Concrete (inches) | Base Course (inches) |
|-------------------------------------|----------------------|----------------------|
| 5.0 (automobile parking, driveways) | 5 | 0 |
| 7.0 (truck access) | 6.5 | |

We have assumed that this Portland cement concrete will have a compressive strength of at least 4,000 psi. Reinforcement should be specified by the structural engineer, but should be a minimum of #3 rebar at 18 inches on center each way. The PCC pavement sections should be provided with crack-control joints spaced no more than 13 feet on center each way. If sawcuts are used, they should have a minimum depth of $\frac{1}{4}$ of the slab thickness and made within 24 hours of concrete placement. We recommend that sections be as nearly square as possible.

PCC sidewalks should be at least 4 inches thick over prepared subgrade soil, with construction joints no more than 8 feet on center each way, with sections as nearly square as possible. Use of reinforcing will help reduce severity of cracking.

All pavement construction should be performed in accordance with the Standard Specifications for Public Works Construction. Field observations and periodic testing, as needed during placement of the base course materials, should be undertaken to ensure that the requirements of the standard specifications are fulfilled. Prior to placement of aggregate base, the subgrade soil should be processed to a minimum depth of 8 inches, moisture-conditioned, as necessary, and recompact to a minimum of 90 percent relative compaction. Aggregate base should be moisture conditioned, as necessary, and compacted to a minimum of 95 percent relative compaction. Field observation and periodic testing, as needed during placement of base course materials, should be undertaken to ensure that requirements of Caltrans' *Standard Specifications* (2015) and Special Provisions are fulfilled. Consideration should be given to reinforce concrete pavements where large outrigger point loads are anticipated.

Recommended structural pavement materials should conform to the specified provisions in the Caltrans *Standard Specifications* (2015) including grading and quality requirements, shown below:

- **Asphalt Concrete (Hot Mixed Asphalt)** for pavement should be Type A and should conform to Section 39 of the *Standard Specifications*. Asphalt concrete specimens should be tested for surface abrasion in accordance with CT-360.
- **Portland Cement Concrete (PCC)** pavement should conform to Section 40 of the *Standard Specifications*. PCC pavement materials (pavement, structures, minor concrete) should conform to Section 90 of the *Standard Specifications*.
- **Class II Aggregate Base (AB)** should conform to Section 26 of the *Standard Specifications*.

Traffic Indices (TIs) used in our pavement design are considered reasonable values for typical parking lot areas, and should provide a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. Irrigation adjacent to pavements, without a deep curb or other cutoff to separate landscaping from the paving, will result in premature pavement failure. Traffic parameters used for design were selected based on engineering judgment and not on information furnished to us such as an equivalent wheel-load analysis or a traffic study. The project Civil Engineer should confirm the TI assumptions.

3.9 Retaining Wall Recommendations

The following retaining wall recommendations are included for design consideration of walls with a height less than 6 feet. We recommend that retaining walls be backfilled with very low expansive soil and constructed with a backdrain in accordance with the recommendations provided on Figure 7, *Retaining Wall Backfill and Subdrain Detail*. Using expansive soil as retaining wall backfill will result in higher lateral earth pressures exerted on the wall and are, therefore, not recommended. Retaining wall locations and configurations are unknown at the time of this report.

Table 7. Retaining Wall Design Parameters

| Static Equivalent Fluid Pressure (pcf) | |
|--|-------------------------|
| Condition | Level Backfill |
| Active | 38 |
| At-Rest (drained, compacted-fill backfill) | 59 |
| Passive (allowable) | 290 (Max. 3,000 psf) |

The above values do not contain an appreciable factor of safety (except for the passive pressure value), so the structural engineer should apply the applicable factors of safety and/or load factors during design.

Cantilever walls that are designed to yield at least $0.001H$, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition.

Passive pressure is used to compute soil resistance to lateral structural movement. In addition, for sliding resistance, a frictional resistance coefficient of 0.4 may be used at the concrete and soil interface. The lateral passive resistance should be taken into account only if it is ensured that the soil providing passive resistance, embedded against the foundation elements, will remain intact with time. A soil unit weight of 120 pcf may be assumed for calculating the actual weight of the soil over the wall footing.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure or traffic loading, should be considered in the design of the retaining wall. Loads applied within a 1:1 projection from the surcharging structure on the stem of the wall should be

considered in the design. A third of uniform vertical surcharge-loads should be applied at the surface as a horizontal pressure on cantilever (active) retaining walls, while half of uniform vertical surcharge-loads should be applied as a horizontal pressure on braced (at-rest) retaining walls. To account for automobile parking surcharge, we suggest that a uniform horizontal pressure of 100 psf (for restrained walls) or 70 psf (for cantilever walls) be added for design, where autos are parked within a horizontal distance behind the retaining wall less than the height of the retaining wall stem.

We recommend that the wall designs for walls 6 feet tall or taller be checked seismically using an *additive seismic* Equivalent Fluid Pressure (EFP) of 43 pcf, which is added to the EFP. The *additive seismic* EFP should be applied at the retained midpoint.

Conventional retaining wall footings should have a minimum width of 24 inches and a minimum embedment of 18 inches below the lowest adjacent grade. An allowable bearing pressure of 2,500 psf may be used for retaining wall footing design, based on the minimum footing width and depth. This bearing value may be increased by 250 psf per foot increase in width or depth to a maximum allowable bearing pressure of 4,000 psf.

3.10 Infiltration Recommendations

We recommend that the onsite artificial fill not be relied upon for infiltration. For underlying alluvial soils that are granular with a low fines content, we recommend an unfactored (small-scale) infiltration rate of 6 inches per hour, for depths of at least 6 feet. The incremental infiltration rate is defined as the incremental flow rate of water infiltrated, divided by the surface area of the infiltration interface. We recommend that a correction factor/safety factor be applied to the infiltration rate in conformance with *San Bernardino County Stormwater Program Technical Guidance Document for Water Quality Management Plans (WQMP)* guidelines, since monitoring of actual facility performance has shown that actual infiltration rates are lower than for small-scale tests. The small-scale infiltration rate should be divided by a correction factor of at least 3 for buried chambers and higher for open basins, but the correction/safety factor may be higher based on project-specific aspects.

The infiltration rates described herein are for a clean, unsilted infiltration surface in native, sandy alluvial soil. These values may be reduced over time as silting of the basin or chamber occurs. Furthermore, if the chamber bottom is allowed to

be compacted by heavy equipment, this value is expected to be significantly reduced. Infiltration of water through soil is highly dependent on such factors as grain size distribution of the soil particles, particle shape, fines content, clay content, and density. Small changes in soil conditions, including density, can cause large differences in observed infiltration rates. Infiltration is not suitable in compacted fill.

It should be noted that during periods of prolonged precipitation, the underlying soils tend to become saturated to greater and greater depths/extends. Therefore, infiltration rates tend to decrease with prolonged rainfall. It is difficult to extrapolate longer-term, full-scale infiltration rates from small-scale tests, and as such, this is a significant source of uncertainty in infiltration rates.

General Design Considerations:

The periodic flow of water carrying sediments in the basin or chamber, plus the introduction of wind-blown sediments and sediments from erosion of the basin side walls, can eventually cause the bottom of the basin or chamber to accumulate a layer of silt, which has the potential of significantly reducing the overall infiltration rate of the basin or chamber. Therefore, we recommend that significant amounts of silt/sediment not be allowed to flow into the facility within storm water, especially during construction of the project and prior to achieving a mature landscape on site. As it is typically very difficult to remove silt from buried infiltration facilities, we recommend that an easily maintained, robust silt/sediment removal system be installed to pretreat storm water before it enters the infiltration facility.

As infiltrating water can seep within the soil strata nearly horizontally for long distances, it is important to consider the impact that infiltration facilities can have on nearby subterranean structures, such as basement walls or open excavations, whether onsite or offsite, and whether existing or planned. Any such nearby features should be identified and evaluated as to whether infiltrating water can impact these. Such features should be brought to Leighton's attention as they are identified.

Infiltration facilities should not be constructed adjacent to or under buildings. Setbacks should be discussed with Leighton during the planning process.

Infiltration facilities should be constructed with spillways or other appropriate means that would cause overfilling to not be a concern to the facility or nearby improvements.

For buried chambers that allow interior standing water, control/access manhole covers should not contain holes or should be screened to prevent mosquitos from entering the cambers.

Construction Considerations:

We recommend that Leighton evaluate the infiltration facility excavations, to confirm that granular, undisturbed alluvium is exposed in the bottoms and sides. Additional excavation or evaluation may be required if fine grained soils are exposed.

It is critical to infiltration that the basin or chamber bottom not be allowed to be compacted during construction or maintenance; rubber-tired equipment and vehicles should not be allowed to operate on the bottom. We recommend that at least the bottom 3 feet of the basins or chambers be excavated with an excavator or similar.

If fill material is needed to be placed in the basin, such as due to removal of uncontrolled artificial fill, the fill material should be select and free-draining sand, and should be observed and evaluated by Leighton.

Maintenance Considerations:

The infiltration facilities should be routinely monitored, especially before and during the rainy season, and corrective measures should be implemented as/when needed. Things to check for include proper upkeep, proper infiltration, absence of accumulated silt, and that de-silting filters/features are clean and functioning. Pretreatment desilting features should be cleaned and maintained per manufacturers' recommendations. Even with measures to prevent silt from flowing into the infiltration facility, accumulated silt may need to be removed occasionally as part of maintenance.

4.0 CONSTRUCTION CONSIDERATIONS

4.1 **Trench Excavations**

Based on our field observations, caving of cohesionless and loose fill soils will likely be encountered in unshored trench excavations. To protect workers entering excavations, excavations should be performed in accordance with OSHA and Cal-OSHA requirements, and the current edition of the California Construction Safety Orders, see:

<http://www.dir.ca.gov/title8/sb4a6.html>

Contractors should be advised that fill soils should initially be considered Type C soils as defined in the California Construction Safety Orders. As indicated in Table B-1 of Article 6, Section 1541.1, Appendix B, of the California Construction Safety Orders, excavations less-than (<) 20 feet deep within Type C soils should be sloped back no steeper than 1½:1 (horizontal:vertical), where workers are to enter the excavation. This may be impractical near adjacent existing utilities and structures; so shoring may be required depending on trench locations. Stiff undisturbed native clays will stand steeper.

During construction, soil conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Close coordination between the competent person and Leighton Consulting, Inc. should be maintained to facilitate construction while providing safe excavations.

4.2 **Temporary Shoring**

Temporary cantilever shoring can be designed based on the active equivalent fluid pressure of 40 pounds-per-cubic-foot (pcf) in alluvium. If excavations are braced at the top and at specific depth intervals, then braced earth pressure may be approximated by a uniform rectangular soil pressure distribution. This uniform pressure expressed in pounds-per-square-foot (psf), may be assumed to be 25 multiplied by H for design, where H is equal to the depth of the excavation being shored, in feet. These recommendations are valid only for trenches not exceeding 15 feet in depth at this site.

4.3 **Trench Backfill**

Utility trenches should be backfilled with compacted fill in accordance with Sections 306-1.2 and 306-1.3 of the *Standard Specifications for Public Works Construction* (SSPWC, "Greenbook"), 2018 Edition. Utility trenches may be

backfilled with onsite material free of rubble, debris, organic and oversized material up to 3 inches in largest dimension. Prior to backfilling trenches, pipes should be bedded in and covered with either:

- (1) **Granular Bedding:** a uniform sand material with a Sand Equivalent (SE) greater-than-or-equal-to (\geq) 30, passing the No. 4 U.S. Standard Sieve (or as specified by the pipe manufacturer).
- (2) **CLSM:** Controlled Low Strength Material (CLSM) conforming to Section 201-6 of the SPWC. CLSM bedding should be placed to 1-foot (0.3 m) over the top of the conduit, and vibrated.

Pipe bedding should extend at least 4 inches below the pipeline invert and at least 12 inches over the top of the pipeline. The bedding and shading sand is recommended to be densified in place by vibratory, lightweight compaction equipment.

Trench backfill over the pipe bedding zone may consist of native and clean fill soils. All backfill should be placed in thin lifts (appropriate for the type of compaction equipment), moisture conditioned to slightly above optimum, and mechanically compacted to at least 90 percent of the laboratory derived maximum density as determined by ASTM Test Method D 1557.

4.4 Geotechnical Services During Construction

Our geotechnical recommendations provided in this report are based on information available at the time the report was prepared and may change as plans are developed. Additional geotechnical exploration, testing and/or analysis may be required based on final plans. Leighton Consulting, Inc. should review site grading, foundation and shoring (if any) plans when available, to comment further on geotechnical aspects of this project and check to see general conformance of final project plans to recommendations presented in this report.

Leighton Consulting, Inc. should be retained to provide geotechnical observation and testing during excavation and all phases of earthwork. Our conclusions and recommendations should be reviewed and verified by us during construction and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing should be provided:

- During all excavation,
- During compaction of all fill materials,

- After excavation of all footings and prior to placement of concrete,
- During utility trench backfilling and compaction,
- During pavement subgrade and base preparation, and/or
- If and when any unusual geotechnical conditions are encountered.

5.0 LIMITATIONS

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time. This exploration was performed with the understanding that this subject site is proposed for development as described in Section 1.2 of this report. Please also refer to Appendix C, *GBA's Important Information About This Geotechnical-Engineering Report*, presenting additional information and limitations regarding geotechnical engineering studies and reports.

Until reviewed and accepted by the reviewing government agency, this report may be subject to change. Changes may be required as part of the review process. Leighton Consulting, Inc. assumes no risk or liability for consequential damages that may arise due to design work progressing before this report is reviewed and accepted.

This report was prepared for PBK Architects, Inc., based on their needs, directions and requirements at the time of our exploration, in accordance with generally accepted geotechnical engineering practices at this time in Fontana for public sites. This report is not authorized for use by, and is not to be relied upon by, any party except PBK Architects Inc., and their design and construction management team, with whom Leighton Consulting, Inc. has contracted for this work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, and/or strict liability of Leighton Consulting, Inc.

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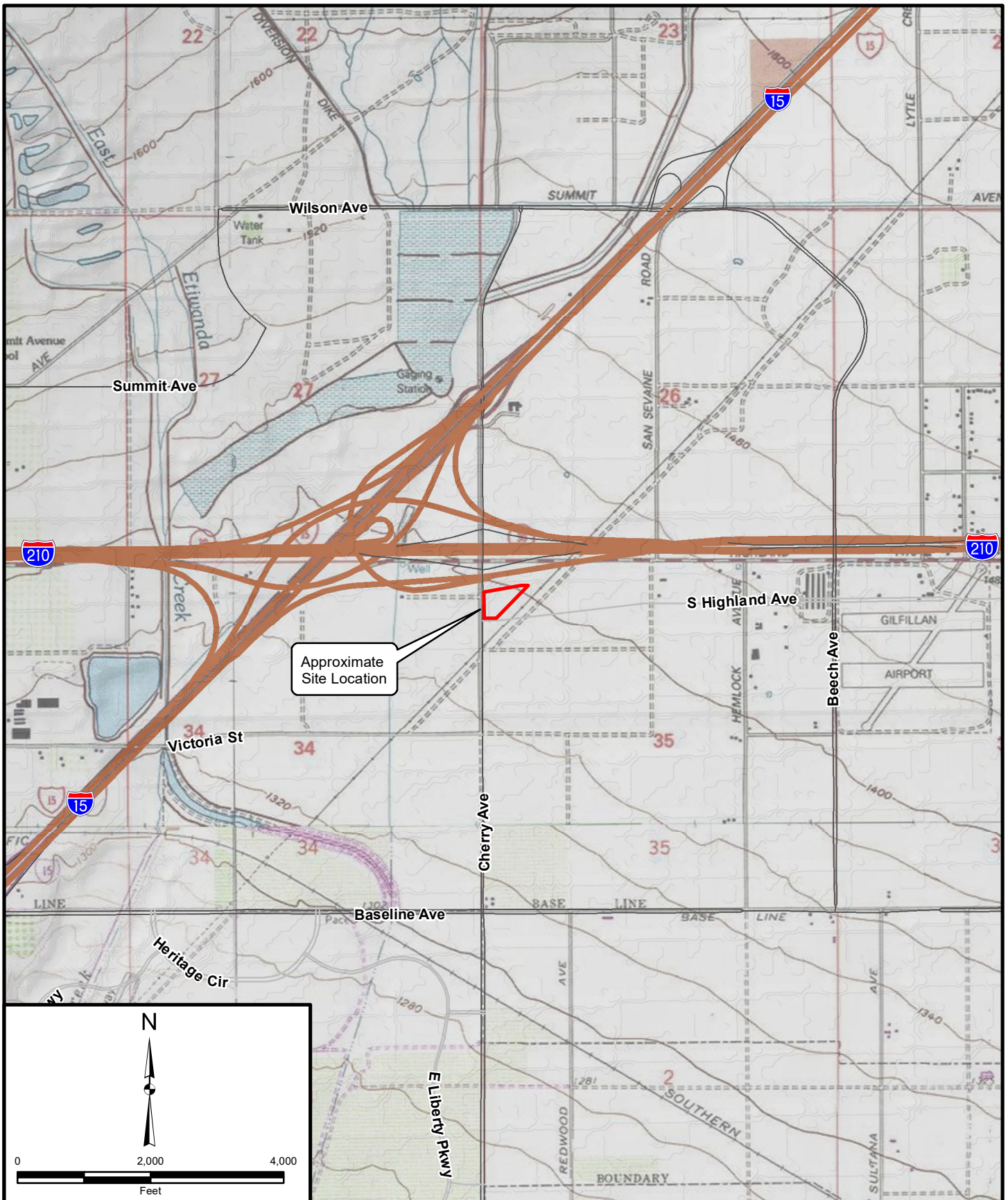
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| | |
|--|-------------------|
| Project: 13491.001 | Eng/Geol: JDH/SGO |
| Scale: 1" = 2,000' | Date: May 2022 |
| Reference: Copyright:© 2013 National Geographic Society, i-cubed | |

SITE LOCATION MAP

Fontana Fire Station No. 80
Northeast Corner of
Highland Avenue and Cherry Avenue
Fontana, California

FIGURE 1





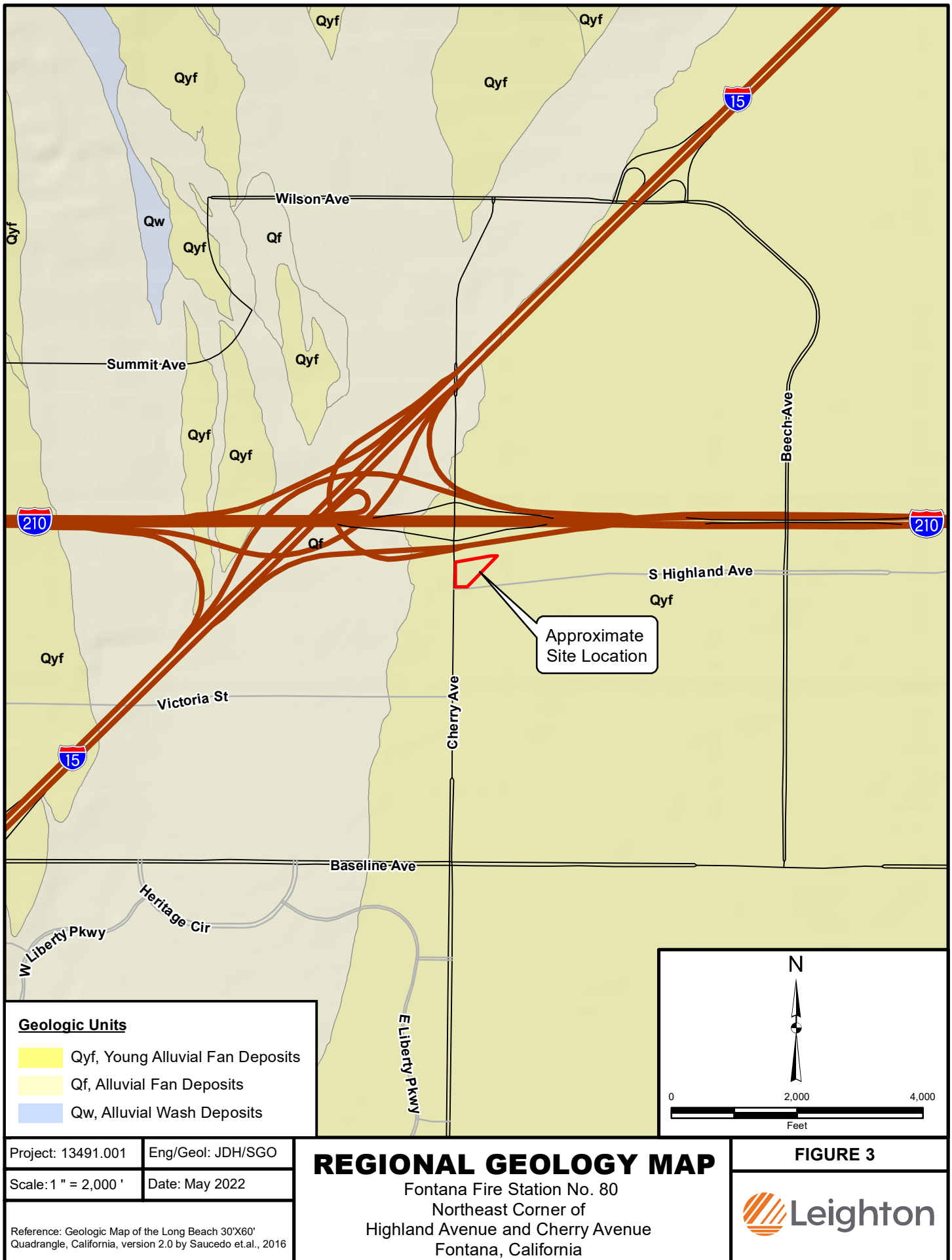
| | |
|--|-------------------|
| Project: 13491.001 | Eng/Geol: JDH/SGO |
| Scale: 1" = 80' | Date: May 2022 |
| Reference: © 2022 Microsoft Corporation © 2022 Maxar ©CNES (2022) Distribution Airbus DS © 2022 TomTom | |

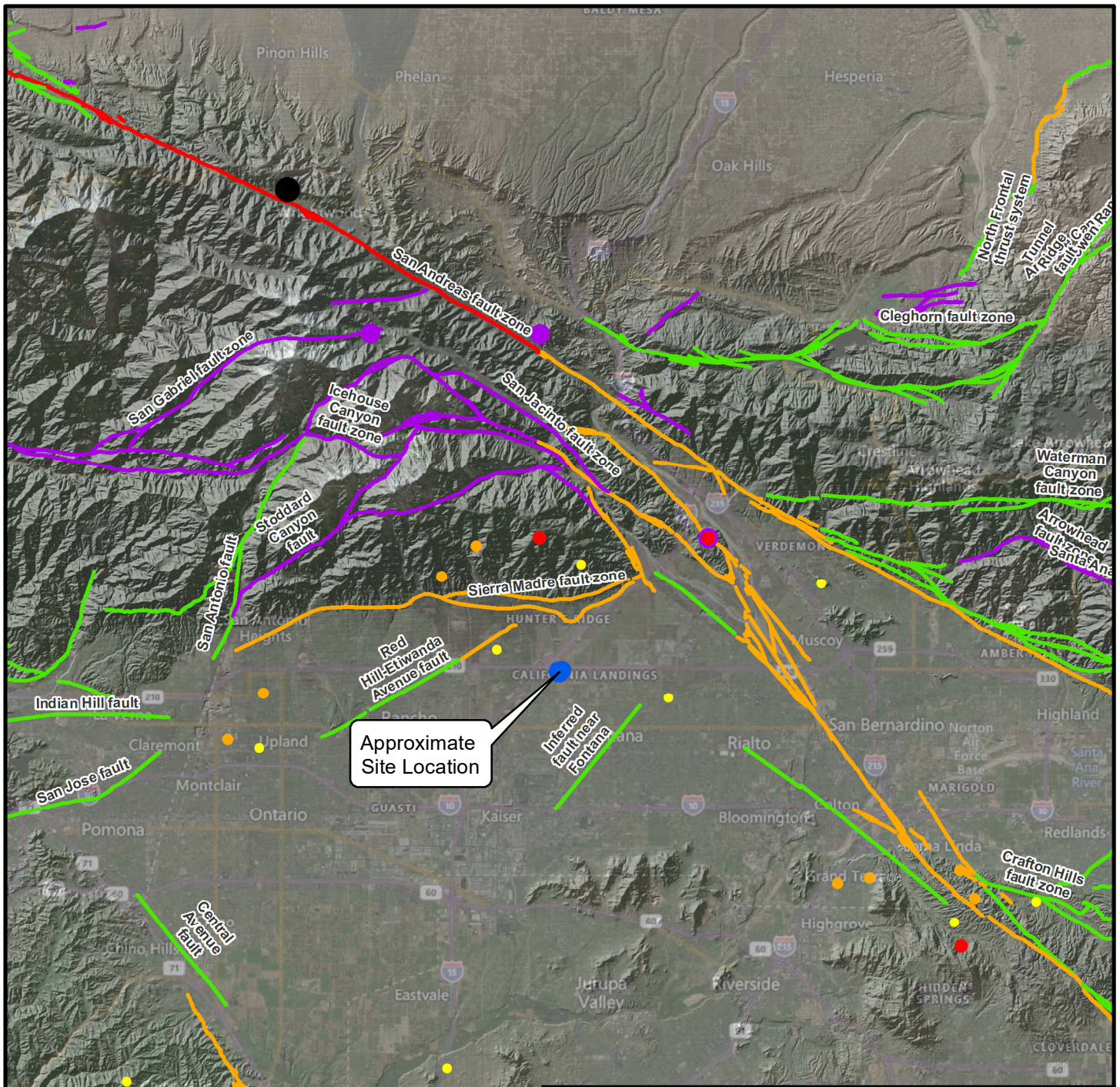
EXPLORATION LOCATION MAP

Fontana Fire Station No. 80
Northeast Corner of Highland Avenue and Cherry Avenue
Fontana, California

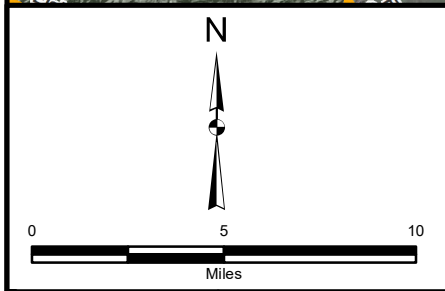
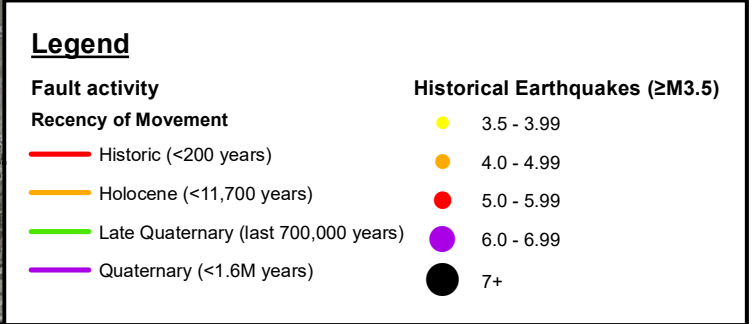
FIGURE 2







Approximate
Site Location



| | |
|---|-------------------|
| Project: 13491.001 | Eng/Geol: JDH/SGO |
| Scale: 1" = 5 miles | Date: May 2022 |
| Basemap Reference: © 2022 Microsoft Corporation Earthstar Geographics SIO © 2022 TomTom Seismicity Data Reference: maps.conservation.ca.gov | |

**REGIONAL FAULTS AND
HISTORIC SEISMICITY MAP**
 Fontana Fire Station No. 80
 Northeast Corner of Highland Ave and Cherry Ave
 Fontana, California

FIGURE 4

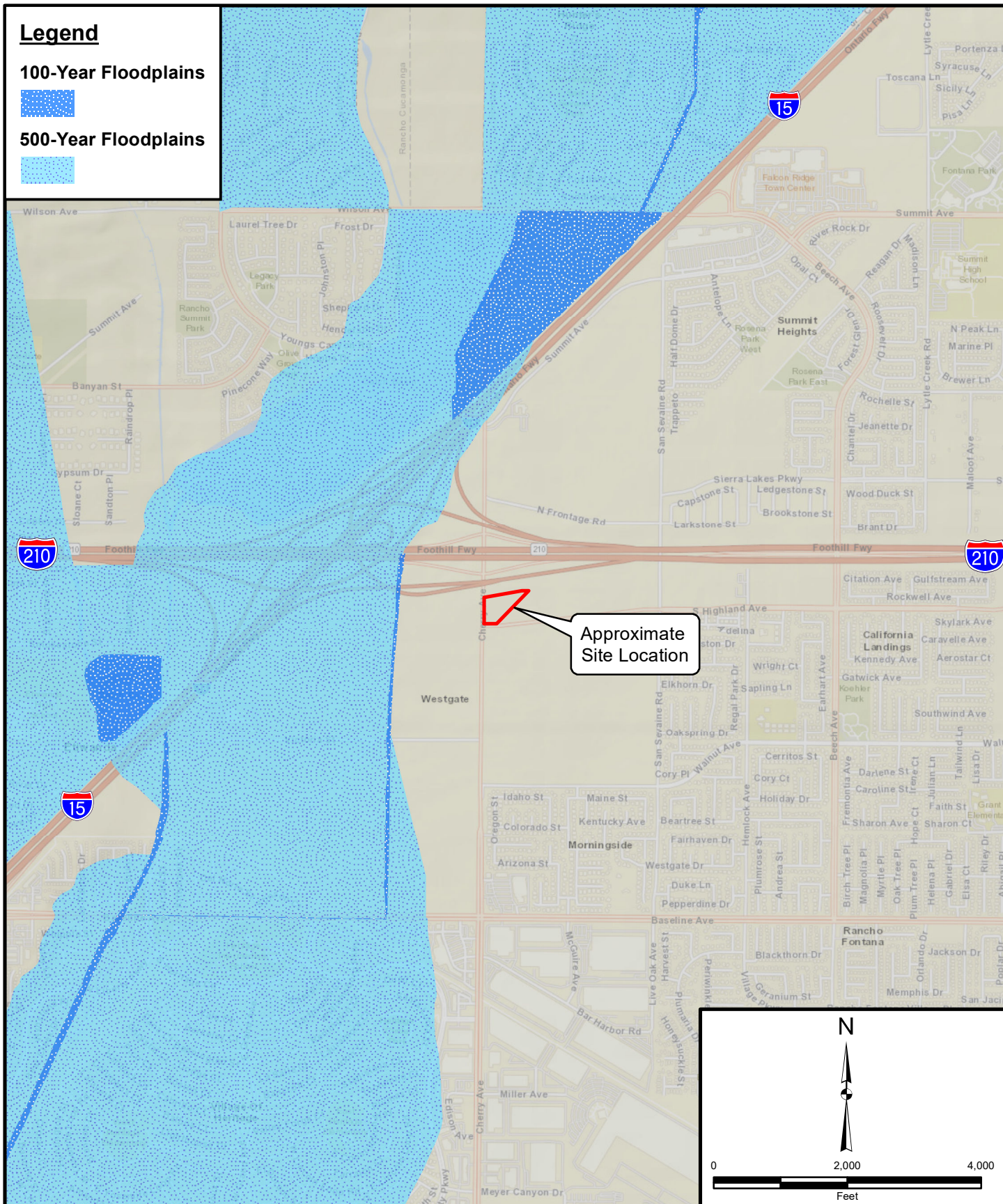

Leighton

Legend

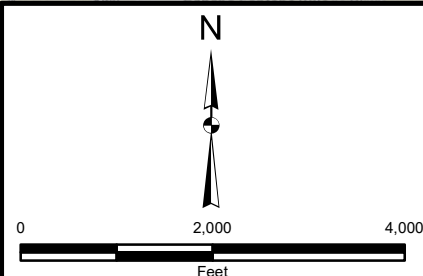
100-Year Floodplains



500-Year Floodplains



Approximate
Site Location



Project: 13491.001

Eng/Geol: JDH/SGO

Scale: 1" = 2,000'

Date: May 2022

Reference: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENTAL, P, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
FEMA (<http://www.fema.gov/index.shtml>), DWR (<http://www.dwr.ca.gov>)

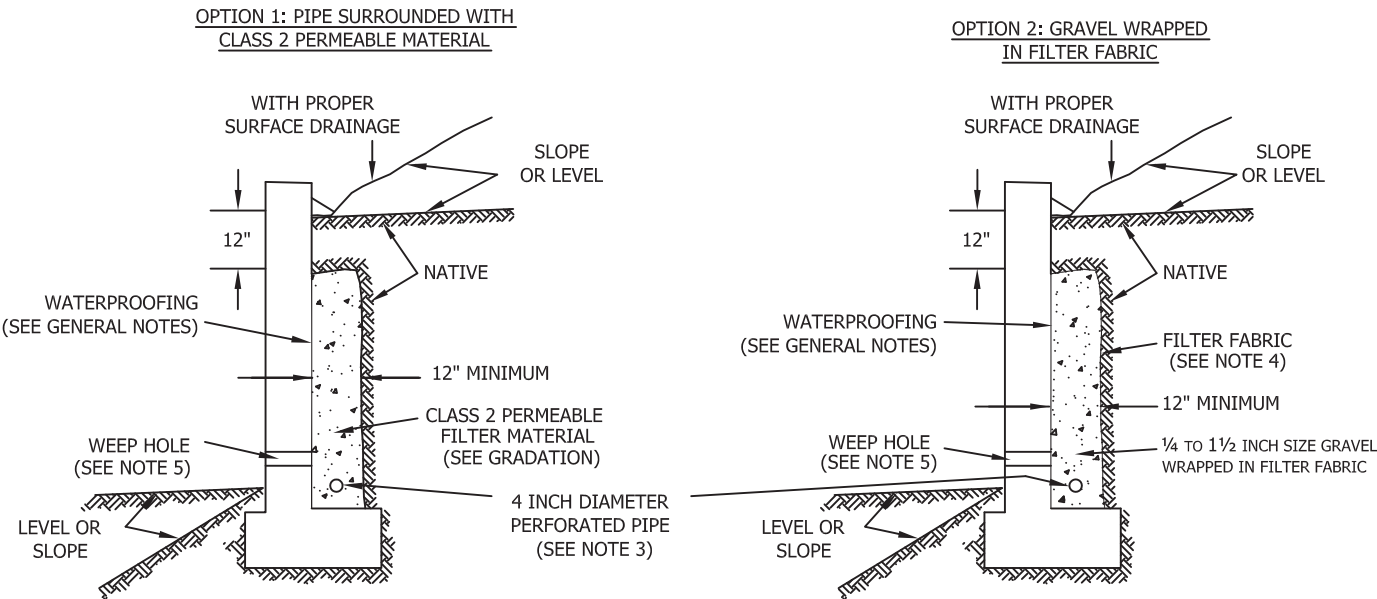
FLOOD HAZARD ZONE MAP

Fontana Fire Station No. 80
Northeast Corner of
Highland Avenue and Cherry Avenue
Fontana, California

FIGURE 6



SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF ≤ 50



Class 2 Filter Permeable Material Gradation
Per Caltrans Specifications

| Sieve Size | Percent Passing |
|------------|-----------------|
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 40-100 |
| No. 4 | 25-40 |
| No. 8 | 18-33 |
| No. 30 | 5-15 |
| No. 50 | 0-7 |
| No. 200 | 0-3 |

GENERAL NOTES:

- * Waterproofing should be provided where moisture nuisance problem through the wall is undesirable.
- * Water proofing of the walls is not under purview of the geotechnical engineer
- * All drains should have a gradient of 1 percent minimum
- * Outlet portion of the subdrain should have a 4-inch diameter solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding)
- * Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:

- 1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
- 2) 1 Cu. ft. per ft. of 1/4- to 1 1/2-inch size gravel wrapped in filter fabric
- 3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chloride plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered)
- 4) Filter fabric should be Mirafi 140NC or approved equivalent.
- 5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. If exposure is permitted, weepholes should be located 12 inches above finished grade. If exposure is not permitted such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
- 6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
- 7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

**RETAINING WALL BACKFILL AND SUBDRAIN DETAIL
FOR WALLS 6 FEET OR LESS IN HEIGHT**

WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF ≤ 50

APPENDIX A

FIELD EXPLORATION

Our field exploration consisted of geologic reconnaissance and a subsurface exploration program consisting of five (5) borings and two (2) infiltration tests. These subsurface exploration locations are plotted on Figure 2, *Geotechnical Map*, and describe in more detail below:

Hollow Stem Auger Borings: On April 7, 2022, seven borings were drilled with a truck rig, logged and sampled to depths ranging from approximately 11½ feet to 51½ feet. After sampling and logging, all borings were immediately backfilled, except for IT-1 and IT-2 where infiltration tests were performed in accordance with the guidelines of San Bernardino County. Encountered soils were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D 2488). Near surface bulk soil samples were collected from these borings. Boring logs and infiltration test results are included as part of this appendix.

Subsurface Variations and Limitations: These attached subsurface exploration logs and related information depict subsurface conditions only at the approximate locations indicated and at the particular date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these locations. Passage of time may result in altered subsurface conditions due to possible environmental changes. In addition, any stratification lines depicted on these logs represent an approximate boundary between soil types, but these transitions can be gradual.

GEOTECHNICAL BORING LOG IT-1

Project No. 13491.001
 Project Fontana Fire Station #80
 Drilling Co. Martini Drilling
 Drilling Method Autohammer - 140lb - Hollow Stem Auger - 30" Drop
 Location See Figure 2- Geotechnical Exploration Map

Date Drilled 4-7-22
 Logged By AA
 Hole Diameter 8"
 Ground Elevation 1385'
 Sampled By AA

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|---------------|
| 1385 | 0 | N S | | | | | | GP | @Surface: GRAVEL with sand (GP), cobbles present Undocumented Artificial Fill (AF) | |
| | | | | | | | | | Quaternary Young Alluvial Fan Deposits (Qyf) | |
| 1380 | 5 | | | | | | | SM | @5': SILTY SAND with gravel (SM), dry, grayish brown, fine to coarse sand, coarse gravel, angular | |
| 1375 | 10 | | | | 50/6" | | | GP | @10': NO RECOVERY GRAVEL with sand (GP), very dense, dry, gray, fine to coarse gravel | |
| 1370 | 15 | | | | | | | | TOTAL DEPTH = 11.5 FEET NO GROUNDWATER ENCOUNTERED CONVERTED TO INFILTRATION BORING SET WELL @ 11.5 FT | |
| 1365 | 20 | | | | | | | | | |
| 1360 | 25 | | | | | | | | | |
| 1355 | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
 C CORE SAMPLE
 G GRAB SAMPLE
 R RING SAMPLE
 S SPLIT SPOON SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
 AL ATTERBERG LIMITS
 CN CONSOLIDATION
 CO COLLAPSE
 CR CORROSION
 CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
 EI EXPANSION INDEX
 H HYDROMETER
 MD MAXIMUM DENSITY
 PP POCKET PENETROMETER
 RV R VALUE

SA SIEVE ANALYSIS
 SE SAND EQUIVALENT
 SG SPECIFIC GRAVITY
 UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG IT-2

Project No. 13491.001
 Project Fontana Fire Station #80
 Drilling Co. Martini Drilling
 Drilling Method Autohammer - 140lb - Hollow Stem Auger - 30" Drop
 Location See Figure 2- Geotechnical Exploration Map

Date Drilled 4-7-22
 Logged By AA
 Hole Diameter 8"
 Ground Elevation 1384'
 Sampled By AA

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|---------------|
| | 0 | N S | | | | | | GP | @Surface: GRAVEL with sand (GP), cobbles present Undocumented Artificial Fill (AF) | |
| 1380 | 5 | | | | | | | SM | Quaternary Young Alluvial Fan Deposits (Qyf) @5': SILTY SAND with gravel (SM), dry, grayish brown, fine to coarse sand, coarse gravel, angular | |
| 1375 | 10 | | | S-1 | 14 21 24 | | | SP-SM | @10': SAND with silt and gravel (SP-SM), dense, slightly moist, gray, fine to coarse sand, fine to coarse gravel, 7% fines (lab) | -200 |
| 1370 | 15 | | | | | | | | TOTAL DEPTH = 11.5 FEET NO GROUNDWATER ENCOUNTERED CONVERTED TO INFILTRATION BORING SET WELL @ 11.5 FT | |
| 1365 | 20 | | | | | | | | | |
| 1360 | 25 | | | | | | | | | |
| 1355 | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
 C CORE SAMPLE
 G GRAB SAMPLE
 R RING SAMPLE
 S SPLIT SPOON SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
 AL ATTERBERG LIMITS
 CN CONSOLIDATION
 CO COLLAPSE
 CR CORROSION
 CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
 EI EXPANSION INDEX
 H HYDROMETER
 MD MAXIMUM DENSITY
 PP POCKET PENETROMETER
 RV R VALUE

SA SIEVE ANALYSIS
 SE SAND EQUIVALENT
 SG SPECIFIC GRAVITY
 UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-1

| | | | |
|-----------------|---|------------------|--------|
| Project No. | 13491.001 | Date Drilled | 4-7-22 |
| Project | Fontana Fire Station #80 | Logged By | AA |
| Drilling Co. | Martini Drilling | Hole Diameter | 8" |
| Drilling Method | Autohammer - 140lb - Hollow Stem Auger - 30" Drop | Ground Elevation | 1386' |
| Location | See Figure 2- Geotechnical Exploration Map | Sampled By | AA |

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|------------------|
| 1385 | 0 | N S | | B-1 | | | | GP | @Surface: GRAVEL with sand (GP) Undocumented Artificial Fill (AF) | -200, MD, EI, CR |
| | | | | R-1 | 15 17 22 | 118 | 3 | SM | Quaternary Young Alluvial Fan Deposits (Qyf) @2.5': SILTY SAND with gravel (SM), medium dense, dry, grayish brown, fine to coarse sand, coarse gravel, angular, 29% gravel, 21% fines (lab) | |
| 1380 | 5 | | | R-2 | 16 22 30 | 110 | 2 | SM | @5': SILTY SAND with gravel (SM), dense, dry, grayish brown, fine to coarse sand, coarse gravel, angular, 30% gravel (field estimate) | |
| | | | | R-3 | 22 29 31 | | | SP-SM | @7.5': SAND with silt and gravel (SP-SM), dense, slightly moist, gray, medium to coarse sand, coarse gravel, angular, 5% fines (lab) | -200 |
| 1375 | 10 | | | R-4 | 18 50/6" | 137 | 2 | GP | @10': GRAVEL with sand (GP), very dense, slightly moist, brown, medium to coarse sand | |
| 1370 | 15 | | | S-1 | 20 50/5.5" | | | GP | @15': GRAVEL with sand (GP), very dense, slightly moist, brown, medium to coarse sand, fine to coarse gravel | |
| | 20 | | | | | | | | TOTAL DEPTH = 16 FEET NO GROUNDWATER ENCOUNTERED BACKFILLED WITH SOIL CUTTINGS TO SURFACE | |
| 1365 | | | | | | | | | | |
| | 25 | | | | | | | | | |
| 1360 | | | | | | | | | | |
| | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
C CORE SAMPLE
G GRAB SAMPLE
R RING SAMPLE
S SPLIT SPOON SAMPLE
T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
AL ATTERBERG LIMITS
CN CONSOLIDATION
CO COLLAPSE
CR CORROSION
CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
EI EXPANSION INDEX
H HYDROMETER
MD MAXIMUM DENSITY
PP POCKET PENETROMETER
RV R VALUE

SA SIEVE ANALYSIS
SE SAND EQUIVALENT
SG SPECIFIC GRAVITY
UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-2

Project No. 13491.001
 Project Fontana Fire Station #80
 Drilling Co. Martini Drilling
 Drilling Method Autohammer - 140lb - Hollow Stem Auger - 30" Drop
 Location See Figure 2- Geotechnical Exploration Map

Date Drilled 4-7-22
 Logged By AA
 Hole Diameter 8"
 Ground Elevation 1385'
 Sampled By AA

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|---------------|
| 1385 | 0 | N S | | | | | | GP | @Surface: GRAVEL with sand (GP), cobbles present Undocumented Artificial Fill (AF) | |
| | | | | R-1 | 6 8 17 | | | SM | Quaternary Young Alluvial Fan Deposits (Qyf) @2.5': SILTY SAND (SM), medium dense, slightly moist, brown, fine to medium sand, 20% gravel, (field estimate), 25% fines (field estimate) | |
| 1380 | 5 | | | R-2 | 20 21 27 | 121 | 7 | SP | @5': SAND with gravel (SP), medium dense, slightly moist, brown, medium to coarse sand, 30% gravel (field estimate) | |
| | | | | R-3 | 36 50/6" | 130 | 2 | SP | @7.5': SAND with gravel (SP), very dense, slightly moist, brown, medium to coarse sand, 30% gravel (field estimate) | |
| 1375 | 10 | | | | 50/2" | | | GP | @10': NO RECOVERY Soil Cuttings: GRAVEL with sand (GP), very dense, slightly moist, brown, medium to coarse sand | |
| 1370 | 15 | | | S-1 | 10 42 50/6" | | | GP | @15': GRAVEL with sand (GP), very dense, slightly moist, brown, medium to coarse sand | |
| 1365 | 20 | | | S-2 | 21 25 49 | | | SP | @20': SAND with gravel (SP), very dense, slightly moist, brown, medium to coarse sand, 30% gravel (field estimate) | |
| 1360 | 25 | | | S-3 | 23 50/6" | | | SP | @25': SAND with gravel (SP), very dense, slightly moist, brown, medium to coarse sand, 30% gravel (field estimate) | |
| 1355 | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
 C CORE SAMPLE
 G GRAB SAMPLE
 R RING SAMPLE
 S SPLIT SPOON SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
 AL ATTERBERG LIMITS
 CN CONSOLIDATION
 CO COLLAPSE
 CR CORROSION
 CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
 EI EXPANSION INDEX
 H HYDROMETER
 MD MAXIMUM DENSITY
 PP POCKET PENETROMETER
 RV R VALUE

SA SIEVE ANALYSIS
 SE SAND EQUIVALENT
 SG SPECIFIC GRAVITY
 UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-2

Project No. 13491.001
 Project Fontana Fire Station #80
 Drilling Co. Martini Drilling
 Drilling Method Autohammer - 140lb - Hollow Stem Auger - 30" Drop
 Location See Figure 2- Geotechnical Exploration Map

Date Drilled 4-7-22
 Logged By AA
 Hole Diameter 8"
 Ground Elevation 1385'
 Sampled By AA

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|------------------------|-----------------|---------------------|------------------------|--|---------------|
| 1355 | 30 | N S | | S-4 | 25 40 50/1" | | | SP | @30': SAND with gravel (SP), very dense, slightly moist, brown, medium to coarse sand, 30% gravel (field estimate) | |
| 1350 | 35 | | | S-5 | 41 50/6" 50/4.5" | | | GP | @35': GRAVEL with sand (GP), very dense, slightly moist, brown, medium to coarse sand | |
| 1345 | 40 | | | S-6 | 25 42 50/4.5" | | | GP | @40': GRAVEL with sand (GP), very dense, slightly moist, brown, medium to coarse sand, 40% gravel (field estimate) | |
| 1340 | 45 | | | S-7 | 26 50/5" | | | GP | @45': GRAVEL with sand (GP), very dense, slightly moist, grayish brown, medium to coarse sand, 20% gravel (field estimate) | |
| 1335 | 50 | | | S-8 | 15 50/3" | | | GP | @50': GRAVEL with sand and silt (GP-GM), very dense, moist, brown, 10% fines (field estimate) | |
| 1330 | 55 | | | | | | | | TOTAL DEPTH = 51.5 FEET NO GROUNDWATER ENCOUNTERED BACKFILLED WITH SOIL CUTTINGS TO SURFACE | |
| 1325 | 60 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
 C CORE SAMPLE
 G GRAB SAMPLE
 R RING SAMPLE
 S SPLIT SPOON SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
 AL ATTERBERG LIMITS
 CN CONSOLIDATION
 CO COLLAPSE
 CR CORROSION
 CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
 EI EXPANSION INDEX
 H HYDROMETER
 MD MAXIMUM DENSITY
 PP POCKET PENETROMETER
 RV R VALUE

SA SIEVE ANALYSIS
 SE SAND EQUIVALENT
 SG SPECIFIC GRAVITY
 UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-3

| | | | |
|-----------------|---|------------------|--------|
| Project No. | 13491.001 | Date Drilled | 4-7-22 |
| Project | Fontana Fire Station #80 | Logged By | AA |
| Drilling Co. | Martini Drilling | Hole Diameter | 8" |
| Drilling Method | Autohammer - 140lb - Hollow Stem Auger - 30" Drop | Ground Elevation | 1385' |
| Location | See Figure 2- Geotechnical Exploration Map | Sampled By | AA |

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <small><i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i></small> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|---|---------------|
| 1385 | 0 | | | | | | | GP | @Surface: GRAVEL with sand (GP) Undocumented Artificial Fill (AF) | |
| | | | | R-1 | 6 10 21 | 92 | 3 | SM | Quaternary Young Alluvial Fan Deposits (Qyf) @2.5': SILTY SAND with gravel (SM), medium dense, slightly moist, brown, fine to medium sand, 17% fines (lab) | -200 |
| 1380 | 5 | | | R-2 | 19 24 23 | 114 | 1 | SP | @5': Poorly-graded SAND with silt (SP-SM), dense, slightly moist, gray, fine to coarse gravel, 30% gravel (field estimate) | CO |
| | | | | R-3 | 40 31 38 | 118 | 2 | SP | @7.5': SAND with gravel (SP), very dense, slightly moist, gray, fine to medium gravel, 40% gravel (field estimate) | |
| 1375 | 10 | | | | 50/5" | | | GP | @10': NO RECOVERY Soil Cuttings: GRAVEL with sand (GP), very dense, slightly moist, grayish brown, fine to medium gravel | |
| 1370 | 15 | | | S-1 | 25 36 31 | | | SP | @15': Fragments of GRAY SANDSTONE @15.5': SAND with gravel (SP), very dense, slightly moist, gray, fine to medium gravel, 30% gravel (field estimate) | |
| 1365 | 20 | | | S-2 | 15 37 30 | | | SP-SM | @20': SAND with silt and gravel (SP-SM), very dense, slightly moist, gray, fine to medium gravel, 6% fines (lab) | -200 |
| 1360 | 25 | | | S-3 | 10 21 50/6" | | | SP | @25': SAND with gravel (SP), very dense, slightly moist, gray, fine to medium gravel, 30% gravel (field estimate) | |
| 1355 | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
C CORE SAMPLE
G GRAB SAMPLE
R RING SAMPLE
S SPLIT SPOON SAMPLE
T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
AL ATTERBERG LIMITS
CN CONSOLIDATION
CO COLLAPSE
CR CORROSION
CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
EI EXPANSION INDEX
H HYDROMETER
MD MAXIMUM DENSITY
PP POCKET PENETROMETER
RV R VALUE

SA SIEVE ANALYSIS
SE SAND EQUIVALENT
SG SPECIFIC GRAVITY
UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-3

| | | | |
|-----------------|---|------------------|--------|
| Project No. | 13491.001 | Date Drilled | 4-7-22 |
| Project | Fontana Fire Station #80 | Logged By | AA |
| Drilling Co. | Martini Drilling | Hole Diameter | 8" |
| Drilling Method | Autohammer - 140lb - Hollow Stem Auger - 30" Drop | Ground Elevation | 1385' |
| Location | See Figure 2- Geotechnical Exploration Map | Sampled By | AA |

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|---------------|
| 1355 | 30 | | | S-4 | 24 50/5.5" | | | SP | @30': SAND with gravel (SP), very dense, slightly moist, gray, fine to medium gravel, 30% gravel (field estimate) | |
| 1350 | 35 | | | S-5 | 26 40 30 | | | SP | @35': SAND with gravel (SP), very dense, slightly moist, gray, fine to medium gravel, 20% gravel (field estimate) | |
| 1345 | 40 | | | S-6 | 32 30 50/5" | | | GP | @40': GRAVEL with sand (GP), very dense, slightly moist, gray, fine to medium gravel | |
| 1340 | 45 | | | S-7 | 30 50/2" | | | GP | @45': GRAVEL with sand (GP), dense, slightly moist, gray, fine to medium gravel | |
| 1335 | 50 | | | S-8 | 18 50/5" | | | GP | @50': GRAVEL with sand (GP), very dense, slightly moist, gray, fine to medium gravel | |
| 1330 | 55 | | | | | | | | TOTAL DEPTH = 51.5 FEET NO GROUNDWATER ENCOUNTERED BACKFILLED WITH SOIL CUTTINGS TO SURFACE | |
| 1325 | 60 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE

C CORE SAMPLE

G GRAB SAMPLE

R RING SAMPLE

S SPLIT SPOON SAMPLE

T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING

AL ATTERBERG LIMITS

CN CONSOLIDATION

CO COLLAPSE

CR CORROSION

CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR

EI EXPANSION INDEX

H HYDROMETER

MD MAXIMUM DENSITY

PP POCKET PENETROMETER

RV R VALUE

SA SIEVE ANALYSIS

SE SAND EQUIVALENT

SG SPECIFIC GRAVITY

UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG LB-4

Project No. 13491.001
 Project Fontana Fire Station #80
 Drilling Co. Martini Drilling
 Drilling Method Autohammer - 140lb - Hollow Stem Auger - 30" Drop
 Location See Figure 2- Geotechnical Exploration Map

Date Drilled 4-7-22
 Logged By AA
 Hole Diameter 8"
 Ground Elevation 1386'
 Sampled By AA

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|---------------|
| 1385 | 0 | N S | | B-1 | | | | GP | @Surface: GRAVEL with sand (GP) Undocumented Artificial Fill (AF) | |
| | | | | R-1 | 5 5 6 | | | SM | Quaternary Young Alluvial Fan Deposits (Qyf) @2.5': SILTY SAND (SM), loose, slightly moist, fine sand, 40% sand (field estimate) | |
| 1380 | 5 | | | R-2 | 11 10 20 | 105 | 8 | SM | @5': SILTY SAND (SM), medium dense, slightly moist, fine sand, 30% fines (field estimate), gravel present near 6.5' depth | |
| | | | | R-3 | 17 20 30 | | | SP | @7.5': SAND with gravel (SP), dense, slightly moist, brown, fine to coarse sand, 20% gravel (field estimate) | |
| 1375 | 10 | | | R-4 | 23 50/6" | 110 | 2 | GP | @10': PARTIAL RECOVERY GRAVEL with sand (GP), very dense, slightly moist, brown, fine to coarse sand | |
| 1370 | 15 | | | S-1 | 12 50/6" | | | GP | @15': NO RECOVERY GRAVEL with sand (GP), very dense, slightly moist, brown, fine to coarse sand, granite found- approximately 1-inch in diameter | |
| 1365 | 20 | | | S-2 | 34 34 35 | | | SP | @20': SAND (SP), very dense, slightly moist, brown, fine to coarse sand, pieces of sandstone in upper 2-inches | |
| 1360 | 25 | | | S-3 | 32 50/6" | | | SP | @25': SAND with gravel (SP), very dense, slightly moist, gray, fine to coarse sand, fine to coarse gravel, 30% (field estimate) | |
| | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
 C CORE SAMPLE
 G GRAB SAMPLE
 R RING SAMPLE
 S SPLIT SPOON SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
 AL ATTERBERG LIMITS
 CN CONSOLIDATION
 CO COLLAPSE
 CR CORROSION
 CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
 EI EXPANSION INDEX
 H HYDROMETER
 MD MAXIMUM DENSITY
 PP POCKET PENETROMETER
 RV R VALUE

SA SIEVE ANALYSIS
 SE SAND EQUIVALENT
 SG SPECIFIC GRAVITY
 UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-4

| | | | |
|-----------------|---|------------------|--------|
| Project No. | 13491.001 | Date Drilled | 4-7-22 |
| Project | Fontana Fire Station #80 | Logged By | AA |
| Drilling Co. | Martini Drilling | Hole Diameter | 8" |
| Drilling Method | Autohammer - 140lb - Hollow Stem Auger - 30" Drop | Ground Elevation | 1386' |
| Location | See Figure 2- Geotechnical Exploration Map | Sampled By | AA |

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION | Type of Tests |
|-------------------|---------------|----------------|-----------|------------|-----------------------|--------------------|------------------------|---------------------------|--|---------------|
| | | | | | | | | | <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | |
| 1355 | 30 | N S | | S-4 | 13 26 32 | | | SP | @30': SAND with gravel (SP), dense, slightly moist, gray, fine to coarse sand, fine to coarse gravel, 30% (field estimate) | |
| | | | | | | | | | TOTAL DEPTH = 31.5 FEET NO GROUNDWATER ENCOUNTERED BACKFILLED WITH SOIL CUTTINGS TO SURFACE | |
| 1350 | 35 | | | | | | | | | |
| 1345 | 40 | | | | | | | | | |
| 1340 | 45 | | | | | | | | | |
| 1335 | 50 | | | | | | | | | |
| 1330 | 55 | | | | | | | | | |
| | 60 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
C CORE SAMPLE
G GRAB SAMPLE
R RING SAMPLE
S SPLIT SPOON SAMPLE
T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
AL ATTERBERG LIMITS
CN CONSOLIDATION
CO COLLAPSE
CR CORROSION
CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
EI EXPANSION INDEX
H HYDROMETER
MD MAXIMUM DENSITY
PP POCKET PENETROMETER
RV R VALUE

SA SIEVE ANALYSIS
SE SAND EQUIVALENT
SG SPECIFIC GRAVITY
UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG LB-5

Project No. 13491.001
 Project Fontana Fire Station #80
 Drilling Co. Martini Drilling
 Drilling Method Autohammer - 140lb - Hollow Stem Auger - 30" Drop
 Location See Figure 2- Geotechnical Exploration Map

Date Drilled 4-7-22
 Logged By AA
 Hole Diameter 8"
 Ground Elevation 1385'
 Sampled By AA

| Elevation Feet | Depth Feet | Graphic Log | Attitudes | Sample No. | Blows Per 6 Inches | Dry Density pcf | Moisture Content, % | Soil Class. (U.S.C.S.) | SOIL DESCRIPTION <i>This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</i> | Type of Tests |
|----------------|------------|-------------|-----------|------------|--------------------|-----------------|---------------------|------------------------|--|---------------|
| 1385 | 0 | | | B-1 | | | | GP | @Surface: GRAVEL with sand (GP), cobbles present Undocumented Artificial Fill (AF) | RV |
| | | | | R-1 | 11 20 21 | 116 | 3 | SM | Quaternary Young Alluvial Fan Deposits (Qyf) @2.5': SILTY SAND with gravel (SM), dense, slightly moist, gray, fine to medium gravel, 30% (field estimate) | |
| 1380 | 5 | | | R-2 | 9 10 19 | 130 | 3 | SM | @5': SILTY SAND with gravel (SM), medium dense, slightly moist, gray, fine to medium gravel, 40% (field estimate) | |
| | | | | R-3 | 14 32 25 | 121 | 3 | GP | @7.5': GRAVEL with sand (GP), dense, slightly moist, gray, fine to coarse gravel, 40% (field estimate) | |
| 1375 | 10 | | | S-1 | 31 50/6" | | | GP | @10': GRAVEL with sand (GP), very dense, slightly moist, grayish brown, medium to coarse sand, fine to coarse gravel | |
| 1370 | 15 | | | S-2 | 20 50/6" | | | GP | @15': GRAVEL with sand (GP), very dense, slightly moist, grayish brown, medium to coarse sand, fine to coarse gravel | |
| 1365 | 20 | | | S-3 | 50/5" | | | GP | @20': GRAVEL with sand (GP), very dense, slightly moist, grayish brown, medium to coarse sand, fine to coarse gravel | |
| 1360 | 25 | | | S-4 | 21 40 45 | | | SP | @25': SAND with gravel (SP), very dense, slightly moist, grayish brown, medium to coarse sand, fine to coarse gravel, 30% (field estimate) | |
| | | | | | | | | | TOTAL DEPTH = 26.5 FEET NO GROUNDWATER ENCOUNTERED BACKFILLED WITH SOIL CUTTINGS TO SURFACE | |
| 1355 | 30 | | | | | | | | | |

SAMPLE TYPES:

B BULK SAMPLE
 C CORE SAMPLE
 G GRAB SAMPLE
 R RING SAMPLE
 S SPLIT SPOON SAMPLE
 T TUBE SAMPLE

TYPE OF TESTS:

-200 % FINES PASSING
 AL ATTERBERG LIMITS
 CN CONSOLIDATION
 CO COLLAPSE
 CR CORROSION
 CU UNDRAINED TRIAXIAL

DS DIRECT SHEAR
 EI EXPANSION INDEX
 H HYDROMETER
 MD MAXIMUM DENSITY
 PP POCKET PENETROMETER
 RV R VALUE

SA SIEVE ANALYSIS
 SE SAND EQUIVALENT
 SG SPECIFIC GRAVITY
 UC UNCONFINED COMPRESSIVE STRENGTH



Project:

sample at 10

Tu>3h?: yes, OK

Cross-sectional area, in.² 17.3

Test Type: Falling Head

| | | |
|---|-------|--------|
| Depth to top of sand from top of casing | 3. ft | 0. in. |
|---|-------|--------|

Total Area of barrels (in.^2): 397

Calculations

| Date | Time | Water Level in Supply Barrel (in.) | Depth to WL in Boring (measured from top of casing) | | Water Temp (deg F) | Refilled? (or Comments) | Δt (min) | Total Elapsed Time (min) | Depth to WL in well (in.) | h, Height of Water in Well (in.) | Δh (in.) | Avg. h | Vol Change (in.^3) | | | Flow (in^3/ min) | q, Flow (in^3/ hr) | Average Infiltration Surface Area, (in^2) | V (Fig 9) | K20, Coef. Of Permeability at 20 deg C (in./hr) | Infiltration Rate [flow/surf area] (in./hr) (FS=1) |
|------------|-------------|------------------------------------|---|-----|--------------------|--------------------------------|----------|--------------------------|---------------------------|----------------------------------|----------|--------|--------------------|---------|-------|------------------|--------------------|---|-----------|---|--|
| | | | | | | | | | | | | | from supply | from Δh | Total | | | | | | |
| Start Date | Start time: | | ft | in. | | | | | | | | | | | | | | | | | |
| 4/8/2022 | 9:34 | 16.6 | 4.7 | | | | | 0 | 45.2 | 67.9 | | | | | | | | | | | |
| 4/8/22 | 9:36 | 14 | 4.72 | | | | 2 | 2 | 45.4 | 67.6 | -0.24 | 68 | 1033 | 4 | 1037 | 519 | 31122 | 1753 | 0.9 | 2.58 | 16.37 |
| 4/8/22 | 9:38 | 11 | 4.9 | | | | 2 | 4 | 47.6 | 65.5 | -2.16 | 67 | 1192 | 37 | 1230 | 615 | 36887 | 1722 | 0.9 | 3.24 | 19.74 |
| 4/8/22 | 9:40 | 9 | 4.9 | | | | 2 | 6 | 47.6 | 65.5 | 0 | 65 | 795 | 0 | 795 | 397 | 23844 | 1695 | 0.9 | 2.08 | 12.97 |
| 4/8/22 | 9:42 | 6.5 | 4.95 | | | | 2 | 8 | 48.2 | 64.9 | -0.6 | 65 | 994 | 10 | 1004 | 502 | 30117 | 1688 | 0.9 | 2.67 | 16.45 |
| 4/8/22 | 9:44 | 4.25 | 5 | | | | 2 | 10 | 48.8 | 64.3 | -0.6 | 65 | 894 | 10 | 905 | 452 | 27136 | 1673 | 0.9 | 2.45 | 14.96 |
| 4/8/22 | 9:46 | 1.9 | 5.04 | | | | 2 | 12 | 49.2 | 63.8 | -0.48 | 64 | 934 | 8 | 942 | 471 | 28266 | 1659 | 0.9 | 2.58 | 15.71 |
| 4/8/22 | 9:48 | 0.3 | 5.09 | | | | 2 | 14 | 49.8 | 63.2 | -0.6 | 63 | 636 | 10 | 646 | 323 | 19387 | 1645 | 0.9 | 1.80 | 10.86 |
| 4/8/22 | | | | | switch barrel | | | | | | | | | | | | | | | | |
| 4/8/22 | 9:54 | 14.9 | 6.51 | | | | | 20 | 66.9 | 46.1 | | | | | | | | | | | |
| 4/8/22 | 9:56 | 13.25 | 6.9 | | | adjust flow | 2 | 22 | 71.6 | 41.5 | -4.68 | 44 | 656 | 81 | 737 | 368 | 22100 | 1151 | 0.9 | 4.11 | 17.70 |
| 4/8/22 | 9:58 | 12.1 | 7.1 | | | | 2 | 24 | 74.0 | 39.1 | -2.4 | 40 | 457 | 42 | 499 | 249 | 14956 | 1062 | 0.9 | 3.02 | 12.98 |
| 4/8/22 | 10:00 | 11 | 7.15 | | | | 2 | 26 | 74.6 | 38.5 | -0.6 | 39 | 437 | 10 | 448 | 224 | 13426 | 1024 | 0.9 | 2.75 | 12.08 |
| 4/8/22 | 10:02 | 10 | 7.15 | | | | 2 | 28 | 74.6 | 38.5 | 0 | 38 | 397 | 0 | 397 | 199 | 11922 | 1017 | 0.9 | 2.43 | 10.81 |
| 4/8/22 | 10:04 | 9 | 7.15 | | | | 2 | 30 | 74.6 | 38.5 | 0 | 38 | 397 | 0 | 397 | 199 | 11922 | 1017 | 0.9 | 2.43 | 10.81 |
| 4/8/22 | 10:06 | 8 | 7.13 | | | | 2 | 32 | 74.3 | 38.7 | 0.24 | 39 | 397 | -4 | 393 | 197 | 11798 | 1020 | 0.9 | 2.38 | 10.67 |
| 4/8/22 | 10:08 | 6.9 | 7.13 | | | | 2 | 34 | 74.3 | 38.7 | 0 | 39 | 437 | 0 | 437 | 219 | 13114 | 1023 | 0.9 | 2.65 | 11.82 |
| 4/8/22 | 10:10 | 5.7 | 7.14 | | | | 2 | 36 | 74.4 | 38.6 | -0.12 | 39 | 477 | 2 | 479 | 239 | 14369 | 1021 | 0.9 | 2.92 | 12.97 |
| 4/8/22 | 10:12 | 4.7 | 7.14 | | | | 2 | 38 | 74.4 | 38.6 | 0 | 39 | 397 | 0 | 397 | 199 | 11922 | 1020 | 0.9 | 2.42 | 10.78 |
| 4/8/22 | 10:15 | 3 | 7.17 | | | | 3 | 41 | 74.8 | 38.2 | -0.36 | 38 | 676 | 6 | 682 | 227 | 13636 | 1015 | 0.9 | 2.82 | 12.38 |
| 4/8/22 | 10:17 | 2.1 | 7.2 | | | | 2 | 43 | 75.2 | 37.9 | -0.36 | 38 | 358 | 6 | 364 | 182 | 10917 | 1006 | 0.9 | 2.29 | 10.00 |
| 4/8/22 | 10:19 | 1.1 | 7.2 | | | | 2 | 45 | 75.2 | 37.9 | 0 | 38 | 397 | 0 | 397 | 199 | 11922 | 1002 | 0.9 | 2.49 | 10.97 |
| 4/8/22 | 10:21 | 0 | 7.21 | | | | 2 | 47 | 75.3 | 37.7 | -0.12 | 38 | 437 | 2 | 439 | 220 | 13177 | 1000 | 0.9 | 2.77 | 12.15 |
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| Raw Rate for design, prior to application of adjustment factors: | |
|--|--|

APPENDIX B

GEOTECHNICAL LABORATORY TESTING

Our geotechnical laboratory testing program was directed toward a quantitative and qualitative evaluation of physical and mechanical properties of soils underlying proposed improvements, and to aid in verifying soil classification.

In-Situ Moisture and Density: As-sampled soil moisture content was measured (ASTM D 2216) on selected samples recovered from our borings. In addition, in place dry density was measured (ASTM D 2937) on selected relatively undisturbed soil samples. Results of these tests are shown on our logs at the appropriate sample depths in Appendix A.

Percent Passing No. 200 Sieve: Percent fines (silt and clay) passing the No. 200 U.S. Standard Sieve was determined for soil samples in accordance with ASTM D 1140 Standard Test Method. Samples were dried and passed through a No. 4 sieve, then a No. 200 sieve. Result of this grain size analysis, as percent by dry weight passing the No. 200 U.S. Standard Sieve, is tabulated in this appendix and entered on our test pit logs.

Particle Size (Sieve) Analysis: Particle size analysis of bulk soil samples by passing sieves was evaluated using the ASTM D 6913 Standard Test Method. Results of these analysis are presented on the *Particle-Size Distribution ASTM D 6913* sheets in this appendix.

Modified Proctor Compaction Curve: A laboratory modified Proctor compaction curve (ASTM D1557) was established for bulk soil-sample to evaluate the modified Proctor laboratory maximum dry density and optimum moisture content. Results of this test are presented on the following *Modified Proctor Compaction Test* sheet in this appendix.

Corrosivity Tests: To evaluate corrosion potential of subsurface soils at the site, we tested a bulk soil sample collected during our subsurface exploration for pH, electrical resistivity (CTM 532/643), soluble sulfate content (CTM 417 Part II) and soluble chloride content (CTM 422) testing. Results of these tests are enclosed at the end of this appendix.

Direct Shear Tests (DS): Direct shear tests were performed on a selected remolded

sample, with cut specimens soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. Specimens were then transferred to the shear box, reloaded, and pore pressures set up in the sample (due to transfer) were allowed to dissipate for a period of approximately one-hour. Following pore pressure dissipation, samples were subjected to shearing forces. These specimens were tested under various normal loads by a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of 0.05 inches per minute. Test results are presented on the “*Direct Shear Test Results*” figures in this appendix.

Expansion Index (EI): An Expansion Index (EI) test was performed on a representative shallow bulk soil sample from this site, in general accordance with the ASTM D4829 Standard Test Method. Results of this test are presented on the following “*Expansion Index of Soils*” table.

Swell or Collapse of Soils (CO): Swell or collapse of soil tests were performed on relatively-undisturbed ring-lined drive-sampler soil samples, to measure the magnitude of one-dimensional wetting-induced swell or collapse on unsaturated soils. Results are presented in this appendix on the *One-Dimensional Swell or Collapse of Soils* (ASTM D 4546) sheets.

Resistance Value (R-Value): R-Value for a shallow bulk soil sample was established by California Test Method 301 to assist in preliminary pavement design recommendations. R-Value results are presented in this appendix on the *R-Value Test Results* sheets.



MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name: Fontana FS No 80 Tested By: J. Gonzalez Date: 04/14/22
Project No.: 13491.001 Checked By: A. Santos Date: 04/18/22
Boring No.: LB-1 Depth (ft.): 0-5
Sample No.: B-1
Soil Identification: Dark brown silty sand with gravel (SM)g

Note: Corrected dry density calculation assumes specific gravity of 2.70 and moisture content of 1.0% for oversize particles

| | | | | | |
|---------------------|-------------------------------------|----------------|--------------------|--------------------------------|---------|
| Preparation Method: | <input checked="" type="checkbox"/> | Moist | Scalp Fraction (%) | Rammer Weight (lb.) = | 10.0 |
| | | Dry | #3/4 | Height of Drop (in.) = | 18.0 |
| Compaction Method: | <input checked="" type="checkbox"/> | Mechanical Ram | #3/8 | | |
| | | Manual Ram | #4 | Mold Volume (ft ³) | 0.03330 |

| TEST NO. | 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------------------|-------|-------|-------|---|---|---|
| Wt. Compacted Soil + Mold (g) | 3903 | 3981 | 3894 | | | |
| Weight of Mold (g) | 1826 | 1826 | 1826 | | | |
| Net Weight of Soil (g) | 2077 | 2155 | 2068 | | | |
| Wet Weight of Soil + Cont. (g) | 518.3 | 527.5 | 461.9 | | | |
| Dry Weight of Soil + Cont. (g) | 487.5 | 484.4 | 416.7 | | | |
| Weight of Container (g) | 39.3 | 37.9 | 38.8 | | | |
| Moisture Content (%) | 6.87 | 9.65 | 11.96 | | | |
| Wet Density (pcf) | 137.5 | 142.7 | 136.9 | | | |
| Dry Density (pcf) | 128.7 | 130.1 | 122.3 | | | |

Maximum Dry Density (pcf) **131.0**

Optimum Moisture Content (%) **8.6**

Corrected Dry Density (pcf) **139.9**

Corrected Moisture Content (%) **6.4**

☒ **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if + #4 is 20% or less

☐ **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if + #4 is >20% and +3/8 in. is 20% or less

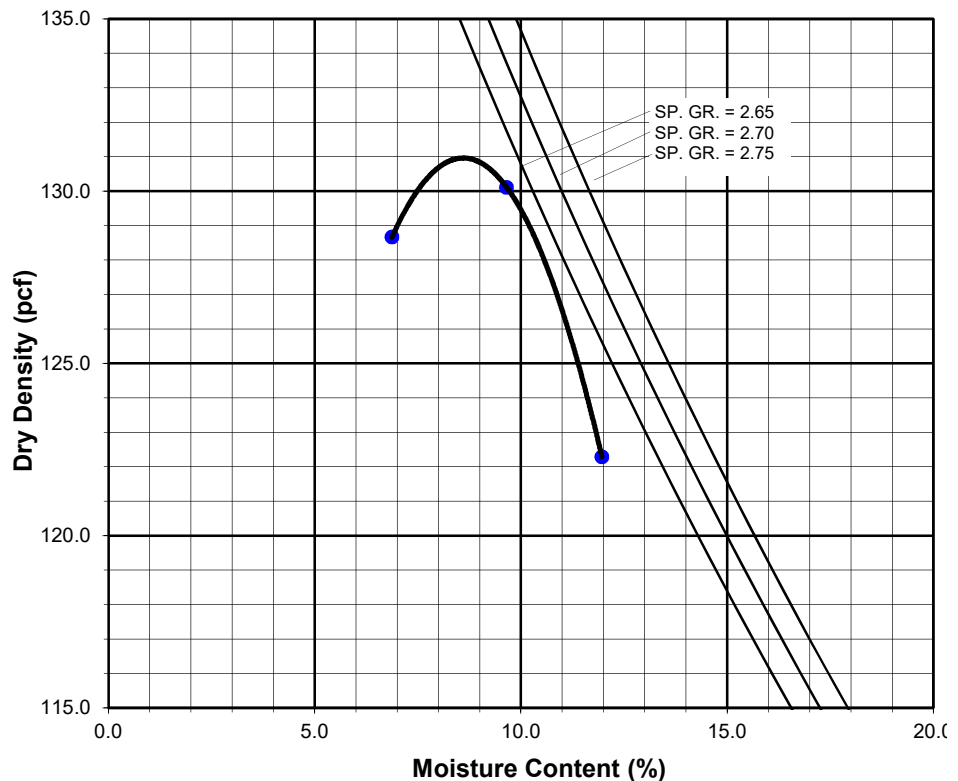
☐ **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +3/4 in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI





**PARTICLE-SIZE DISTRIBUTION (GRADATION)
of SOILS USING SIEVE ANALYSIS
ASTM D6913**

Project Name: [Fontana FS No 80](#)

Tested By: [J. Domingo](#) Date: [04/15/22](#)

Project No.: [13491.001](#)

Checked By: [A. Santos](#) Date: [04/28/22](#)

Boring No.: [LB-1](#)

Depth (feet): [0-5](#)

Sample No.: [B-1](#)

Soil Identification: [Dark brown silty sand with gravel \(SM\)g](#)

| Calculation of Dry Weights | Whole Sample | Sample Passing #4 | Moisture Contents | Whole Sample | Sample passing #4 |
|-------------------------------|--------------|-------------------|--------------------------------|--------------|-------------------|
| Container No.: | P-16 | 910 | Wt. of Air-Dry Soil + Cont.(g) | 0.0 | 0.0 |
| Wt. Air-Dried Soil + Cont.(g) | 2799.2 | 530.9 | Wt. of Dry Soil + Cont. (g) | 0.0 | 0.0 |
| Wt. of Container (g) | 278.2 | 74.8 | Wt. of Container No. (g) | 1.0 | 1.0 |
| Dry Wt. of Soil (g) | 2521.0 | 456.1 | Moisture Content (%) | 0.0 | 0.0 |

| | | |
|-------------------------------------|---|-------|
| Passing #4 Material After Wet Sieve | Container No. | 910 |
| | Wt. of Dry Soil + Container (g) | 402.6 |
| | Wt. of Container (g) | 74.8 |
| | Dry Wt. of Soil Retained on # 200 Sieve (g) | 327.8 |

| U. S. Sieve Size | | Cumulative Weight of Dry Soil Retained (g) | | Percent Passing (%) |
|------------------|-------|--|-------------------|---------------------|
| | (mm.) | Whole Sample | Sample Passing #4 | |
| 3" | 75.0 | | | |
| 1 1/2" | 37.5 | 0.0 | | 100.0 |
| 1" | 25.0 | 167.0 | | 93.4 |
| 3/4" | 19.0 | 233.3 | | 90.7 |
| 1/2" | 12.5 | 432.4 | | 82.8 |
| 3/8" | 9.5 | 563.7 | | 77.6 |
| #4 | 4.75 | 722.5 | | 71.3 |
| #8 | 2.36 | | 39.9 | 65.1 |
| #16 | 1.18 | | 75.9 | 59.4 |
| #30 | 0.600 | | 113.2 | 53.6 |
| #50 | 0.300 | | 167.7 | 45.1 |
| #100 | 0.150 | | 242.4 | 33.4 |
| #200 | 0.075 | | 319.4 | 21.4 |
| PAN | | | | |

GRAVEL: **29 %**

SAND: **50 %**

FINES: **21 %**

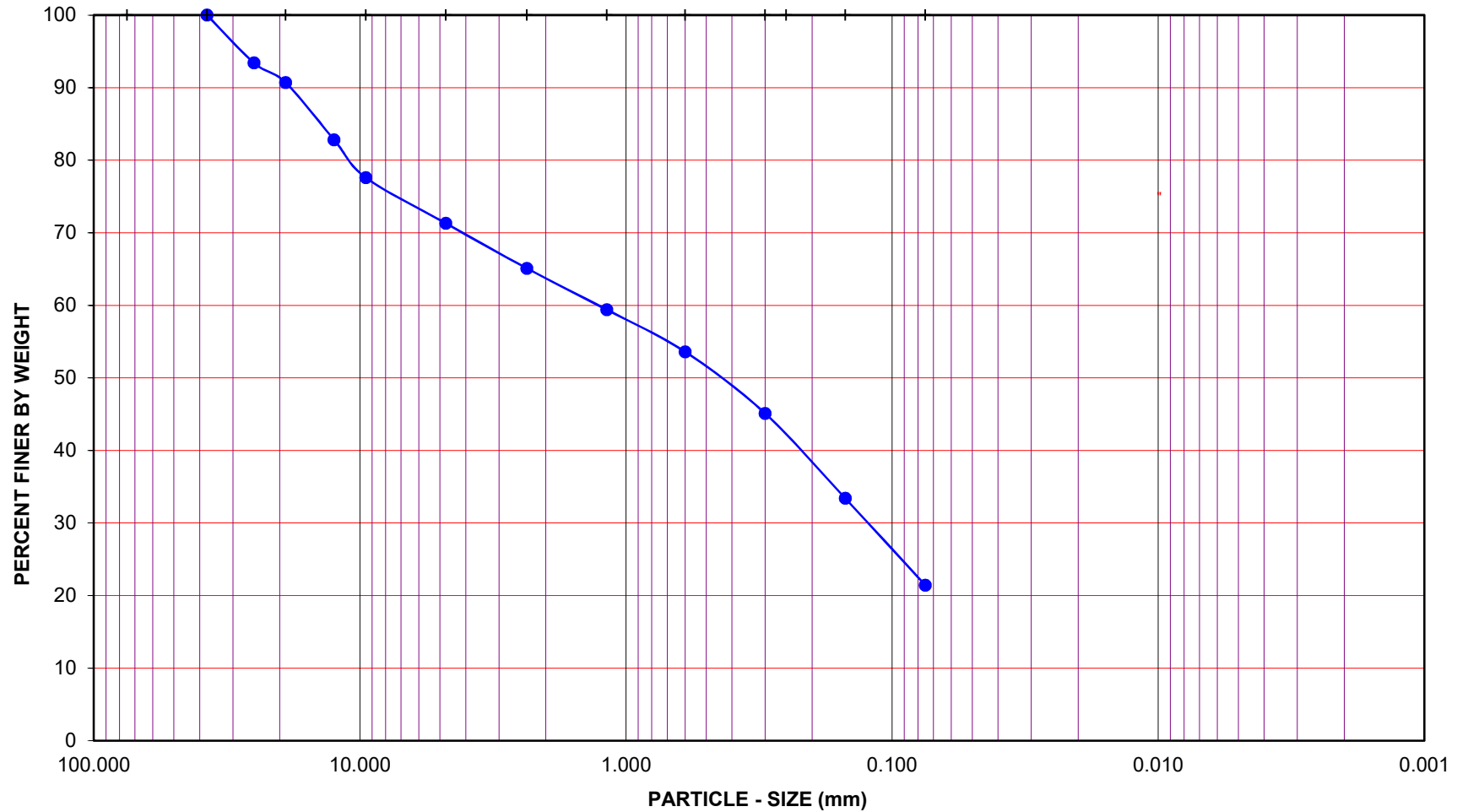
GROUP SYMBOL: **(SM)g**

Cu = D60/D10 = _____

Cc = (D30)²/(D60*D10) = _____

Remarks: _____

| GRAVEL | | | | SAND | | | | | | | FINES | | |
|-----------------------------|--------|------|------|----------------------------|--------|-----|------|-----|------|------|------------|------|--|
| COARSE | | FINE | | COARSE | MEDIUM | | FINE | | | SILT | | CLAY | |
| U.S. STANDARD SIEVE OPENING | | | | U.S. STANDARD SIEVE NUMBER | | | | | | | HYDROMETER | | |
| 3.0" | 1 1/2" | 3/4" | 3/8" | #4 | #8 | #16 | #30 | #50 | #100 | #200 | | | |



Project Name: Fontana FS No 80

Project No.: 13491.001

Boring No.: LB-1

Sample No.: B-1

Depth (feet): 0-5

Soil Type : (SM)g

Soil Identification: Dark brown silty sand with gravel (SM)g

GR:SA:FI : (%) 29 : 50 : 21



**PARTICLE - SIZE
DISTRIBUTION
ASTM D 6913**

Apr-22



EXPANSION INDEX of SOILS
ASTM D 4829

Project Name: Fontana FS No 80 Tested By: G. Berdy Date: 04/18/22
Project No.: 13491.001 Checked By: A. Santos Date: 04/28/22
Boring No.: LB-1 Depth (ft.): 0-5
Sample No.: B-1
Soil Identification: Dark brown silty sand with gravel (SM)g

| | | |
|----------------------------------|-----|---------|
| Dry Wt. of Soil + Cont. | (g) | 1000.00 |
| Wt. of Container No. | (g) | 0.00 |
| Dry Wt. of Soil | (g) | 1000.00 |
| Weight Soil Retained on #4 Sieve | | 0.00 |
| Percent Passing # 4 | | 100.00 |

| MOLDED SPECIMEN | Before Test | After Test |
|--|-------------|------------|
| Specimen Diameter (in.) | 4.01 | 4.01 |
| Specimen Height (in.) | 1.0000 | 0.9990 |
| Wt. Comp. Soil + Mold (g) | 601.60 | 461.40 |
| Wt. of Mold (g) | 163.50 | 0.00 |
| Specific Gravity (Assumed) | 2.70 | 2.70 |
| Container No. | 0 | 0 |
| Wet Wt. of Soil + Cont. (g) | 875.50 | 624.90 |
| Dry Wt. of Soil + Cont. (g) | 820.50 | 574.09 |
| Wt. of Container (g) | 0.00 | 163.50 |
| Moisture Content (%) | 6.70 | 12.37 |
| Wet Density (pcf) | 132.1 | 139.3 |
| Dry Density (pcf) | 123.8 | 124.0 |
| Void Ratio | 0.361 | 0.360 |
| Total Porosity | 0.265 | 0.265 |
| Pore Volume (cc) | 54.9 | 54.7 |
| Degree of Saturation (%) [S _{meas}] | 50.1 | 92.9 |

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

| Date | Time | Pressure (psi) | Elapsed Time (min.) | Dial Readings (in.) |
|-------------------------------------|------|----------------|---------------------|---------------------|
| 04/18/22 | 9:12 | 1.0 | 0 | 0.5790 |
| 04/18/22 | 9:22 | 1.0 | 10 | 0.5785 |
| Add Distilled Water to the Specimen | | | | |
| 04/18/22 | 9:50 | 1.0 | 28 | 0.5775 |
| 04/19/22 | 6:01 | 1.0 | 1239 | 0.5780 |
| 04/19/22 | 7:15 | 1.0 | 1313 | 0.5780 |
| | | | | |

| | |
|---|----------|
| Expansion Index (EI _{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000 | 0 |
|---|----------|



**TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS**

Project Name: Fontana FS No 80 Tested By : G. Berdy Date: 04/18/22
Project No. : 13491.001 Checked By: A. Santos Date: 04/28/22

| | | | | |
|------------------------------------|---------------------|--|--|--|
| Boring No. | LB-1 | | | |
| Sample No. | B-1 | | | |
| Sample Depth (ft) | 0-5 | | | |
| Soil Identification: | Dark brown (SM)g | | | |
| Wet Weight of Soil + Container (g) | 0.00 | | | |
| Dry Weight of Soil + Container (g) | 0.00 | | | |
| Weight of Container (g) | 1.00 | | | |
| Moisture Content (%) | 0.00 | | | |
| Weight of Soaked Soil (g) | 100.31 | | | |

SULFATE CONTENT, DOT California Test 417, Part II

| | | | | |
|---|------------|--|--|--|
| Beaker No. | 2 | | | |
| Crucible No. | 3 | | | |
| Furnace Temperature (°C) | 860 | | | |
| Time In / Time Out | 7:15/8:00 | | | |
| Duration of Combustion (min) | 45 | | | |
| Wt. of Crucible + Residue (g) | 24.5154 | | | |
| Wt. of Crucible (g) | 24.5123 | | | |
| Wt. of Residue (g) (A) | 0.0031 | | | |
| PPM of Sulfate (A) x 41150 | 127.56 | | | |
| PPM of Sulfate, Dry Weight Basis | 128 | | | |

CHLORIDE CONTENT, DOT California Test 422

| | | | | |
|---|-----------|--|--|--|
| ml of Extract For Titration (B) | 15 | | | |
| ml of AgNO ₃ Soln. Used in Titration (C) | 0.6 | | | |
| PPM of Chloride (C -0.2) * 100 * 30 / B | 80 | | | |
| PPM of Chloride, Dry Wt. Basis | 80 | | | |

pH TEST, DOT California Test 643

| | | | | |
|----------------|------|--|--|--|
| pH Value | 6.81 | | | |
| Temperature °C | 21.2 | | | |



SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name: Fontana FS No 80
Project No. : 13491.001
Boring No.: LB-1
Sample No. : B-1

Tested By : G. Berdy Date: 04/25/22
Checked By: A. Santos Date: 04/28/22
Depth (ft.) : 0-5

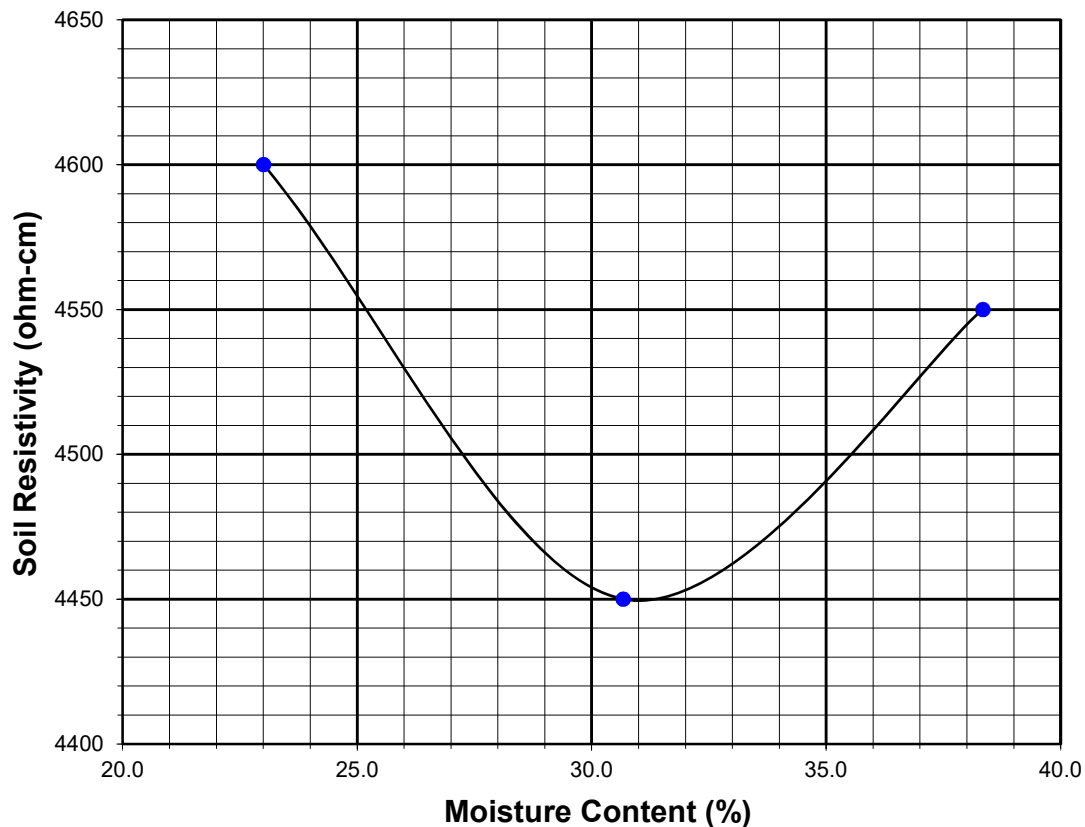
Soil Identification:* Dark brown (SM)g

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

| Specimen No. | Water Added (ml) (Wa) | Adjusted Moisture Content (MC) | Resistance Reading (ohm) | Soil Resistivity (ohm-cm) |
|--------------|-----------------------|--------------------------------|--------------------------|---------------------------|
| 1 | 30 | 23.01 | 4600 | 4600 |
| 2 | 40 | 30.67 | 4450 | 4450 |
| 3 | 50 | 38.34 | 4550 | 4550 |
| 4 | | | | |
| 5 | | | | |

| | |
|--|--------|
| Moisture Content (%) (Mci) | 0.00 |
| Wet Wt. of Soil + Cont. (g) | 0.00 |
| Dry Wt. of Soil + Cont. (g) | 0.00 |
| Wt. of Container (g) | 1.00 |
| Container No. | |
| Initial Soil Wt. (g) (Wt) | 130.40 |
| Box Constant | 1.000 |
| $MC = (((1 + Mci / 100) \times (Wa / Wt + 1)) - 1) \times 100$ | |

| Min. Resistivity (ohm-cm) | Moisture Content (%) | Sulfate Content (ppm) | Chloride Content (ppm) | Soil pH | |
|------------------------------|-------------------------|--------------------------|---------------------------|-----------------|------------|
| | | | | pH | Temp. (°C) |
| DOT CA Test 643 | | DOT CA Test 417 Part II | DOT CA Test 422 | DOT CA Test 643 | |
| 4450 | 31.0 | 128 | 80 | 6.81 | 21.2 |





DIRECT SHEAR TEST
Consolidated Drained - ASTM D 3080

Project Name: [Fontana FS No 80](#)

Project No.: [13491.001](#)

Boring No.: [LB-5](#)

Sample No.: [B-1](#)

Soil Identification: [Olive brown silty sand with gravel \(SM\)g](#)

Tested By: [G. Bathala](#)

Checked By: [A. Santos](#)

Sample Type: [90% Remold](#)

Depth (ft.): [0-5](#)

Date: [04/19/22](#)

Date: [04/28/22](#)

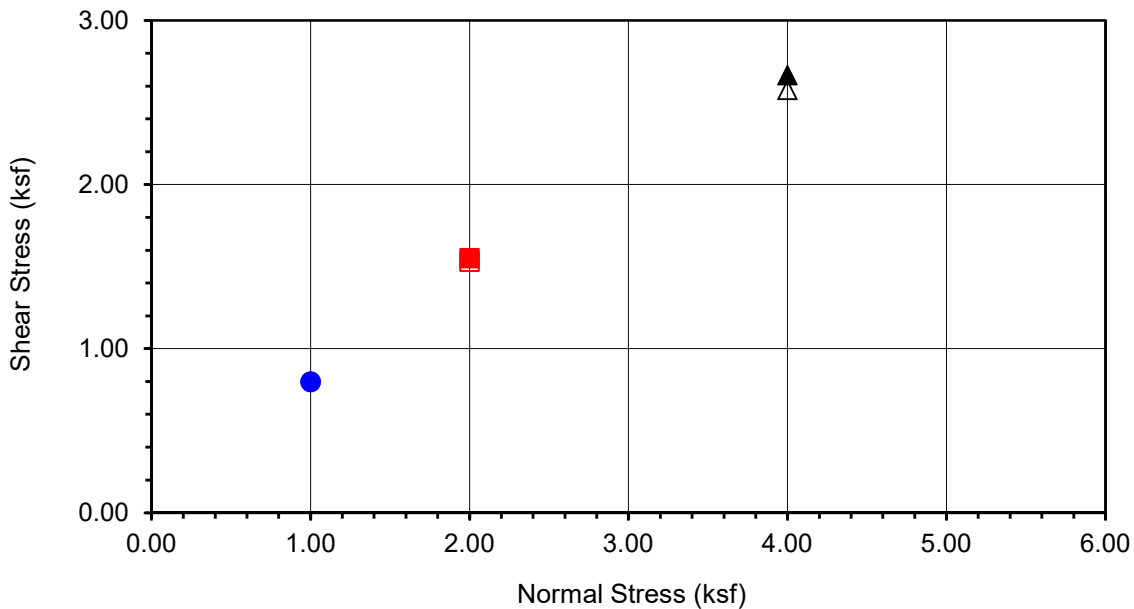
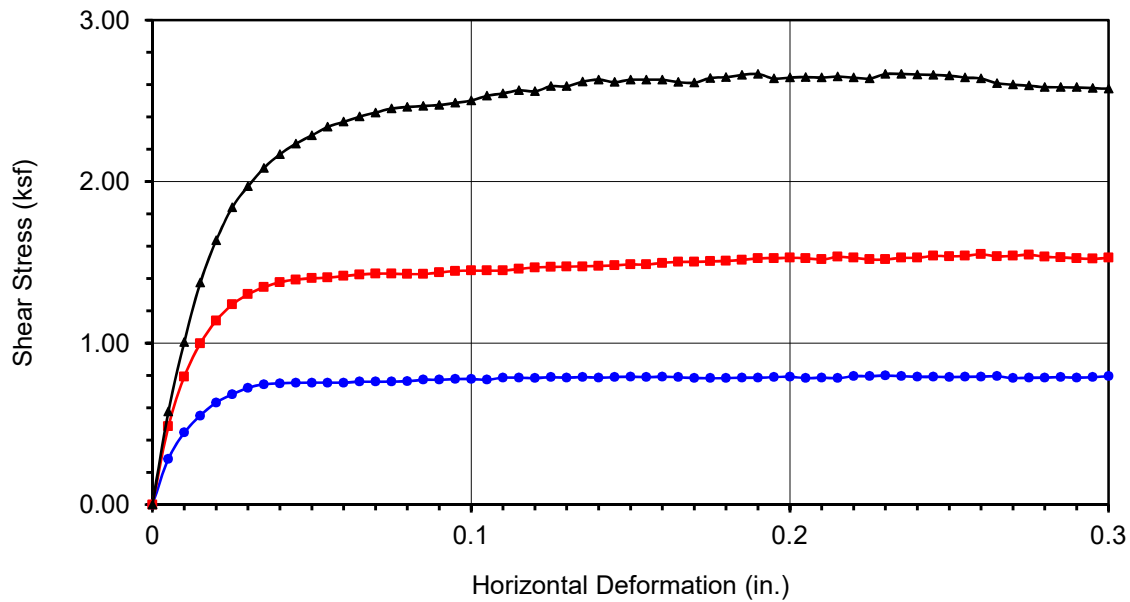
| | | | |
|------------------------------|------------------------|------------------------|------------------------|
| Sample Diameter(in): | 2.415 | 2.415 | 2.415 |
| Sample Thickness(in.): | 1.000 | 1.000 | 1.000 |
| Weight of Sample + ring(gm): | 199.81 | 200.09 | 200.43 |
| Weight of Ring(gm): | 45.39 | 45.44 | 45.61 |

Before Shearing

| | | | |
|---------------------------------|-------------------------|------------------------|------------------------|
| Weight of Wet Sample+Cont.(gm): | 162.65 | 162.65 | 162.65 |
| Weight of Dry Sample+Cont.(gm): | 154.48 | 154.48 | 154.48 |
| Weight of Container(gm): | 56.91 | 56.91 | 56.91 |
| Vertical Rdg.(in): Initial | 0.0000 | 0.2383 | 0.2586 |
| Vertical Rdg.(in): Final | -0.0106 | 0.2516 | 0.2772 |

After Shearing

| | | | |
|---------------------------------|------------------------|------------------------|------------------------|
| Weight of Wet Sample+Cont.(gm): | 222.40 | 212.48 | 224.21 |
| Weight of Dry Sample+Cont.(gm): | 206.55 | 196.65 | 208.81 |
| Weight of Container(gm): | 67.11 | 56.91 | 69.11 |
| Specific Gravity (Assumed): | 2.70 | 2.70 | 2.70 |
| Water Density(pcf): | 62.43 | 62.43 | 62.43 |



| | |
|--|-------------|
| Boring No. | LB-5 |
| Sample No. | B-1 |
| Depth (ft) | 0-5 |
| <u>Sample Type:</u> | |
| 90% Remold | |
| <u>Soil Identification:</u> | |
| Olive brown silty sand with gravel (SM)g | |

| | | | |
|--|---------|---------|---------|
| Normal Stress (kip/ft ²) | 1.000 | 2.000 | 4.000 |
| Peak Shear Stress (kip/ft ²) | ● 0.799 | ■ 1.550 | ▲ 2.666 |
| Shear Stress @ End of Test (ksf) | ○ 0.795 | □ 1.528 | △ 2.575 |
| Deformation Rate (in./min.) | 0.0033 | 0.0033 | 0.0033 |
| Initial Sample Height (in.) | 1.000 | 1.000 | 1.000 |
| Diameter (in.) | 2.415 | 2.415 | 2.415 |
| Initial Moisture Content (%) | 8.37 | 8.37 | 8.37 |
| Dry Density (pcf) | 118.5 | 118.7 | 118.8 |
| Saturation (%) | 53.5 | 53.8 | 54.0 |
| Soil Height Before Shearing (in.) | 0.9894 | 0.9867 | 0.9814 |
| Final Moisture Content (%) | 11.4 | 11.3 | 11.0 |



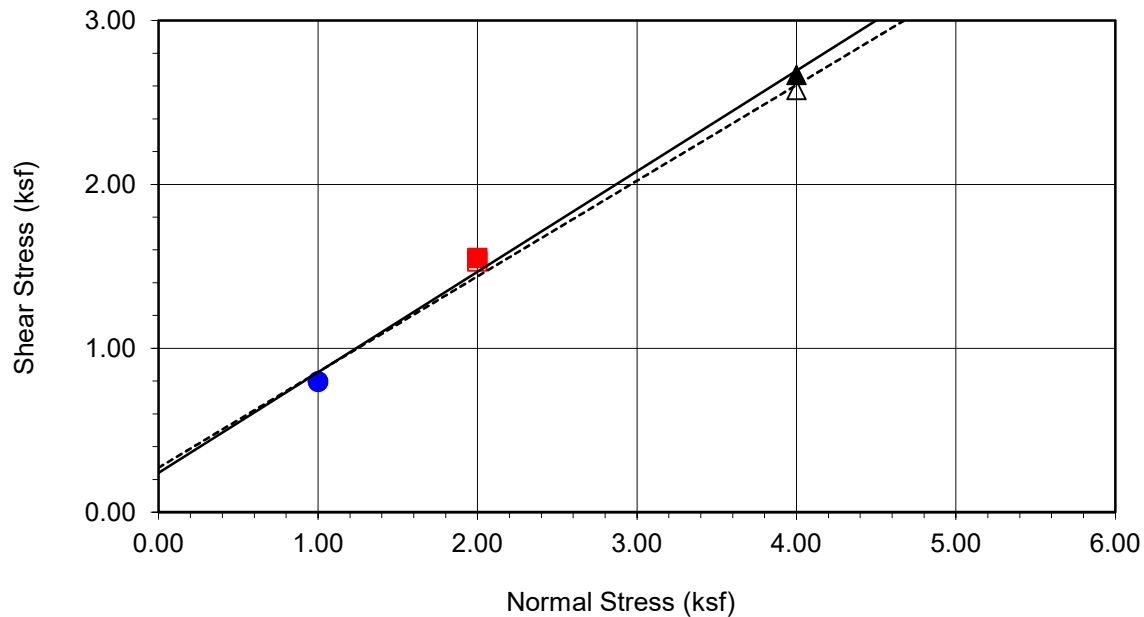
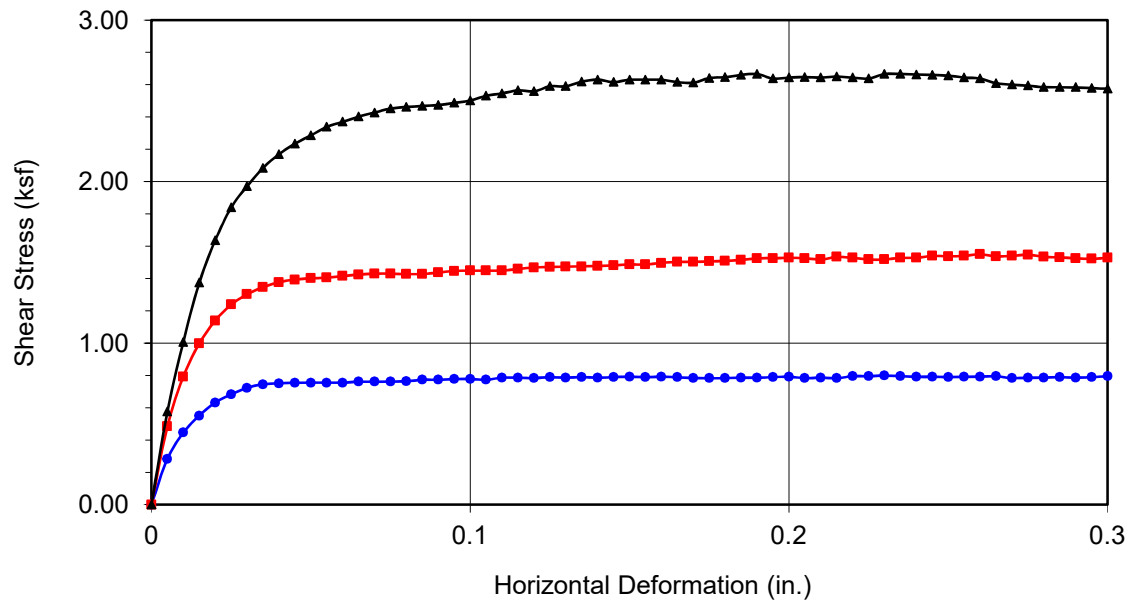
DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 13491.001

Fontana FS No 80

04-22



| | | |
|--|-------------|-----------------------|
| Boring No. | LB-5 | |
| Sample No. | B-1 | |
| Depth (ft) | 0-5 | |
| <u>Sample Type:</u> 90% Remold | | |
| <u>Soil Identification:</u> Olive brown silty sand with gravel (SM)g | | |
| <u>Strength Parameters</u> | | |
| | C (psf) | ϕ ($^{\circ}$) |
| Peak | 241 | 32 |
| Ultimate | 272 | 30 |

| | | | |
|--|---------|---------|---------|
| Normal Stress (kip/ft ²) | 1.000 | 2.000 | 4.000 |
| Peak Shear Stress (kip/ft ²) | ● 0.799 | ■ 1.550 | ▲ 2.666 |
| Shear Stress @ End of Test (ksf) | ○ 0.795 | □ 1.528 | △ 2.575 |
| Deformation Rate (in./min.) | 0.0033 | 0.0033 | 0.0033 |
| Initial Sample Height (in.) | 1.000 | 1.000 | 1.000 |
| Diameter (in.) | 2.415 | 2.415 | 2.415 |
| Initial Moisture Content (%) | 8.37 | 8.37 | 8.37 |
| Dry Density (pcf) | 118.5 | 118.7 | 118.8 |
| Saturation (%) | 53.5 | 53.8 | 54.0 |
| Soil Height Before Shearing (in.) | 0.9894 | 0.9867 | 0.9814 |
| Final Moisture Content (%) | 11.4 | 11.3 | 11.0 |



DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 13491.001

Fontana FS No 80

04-22



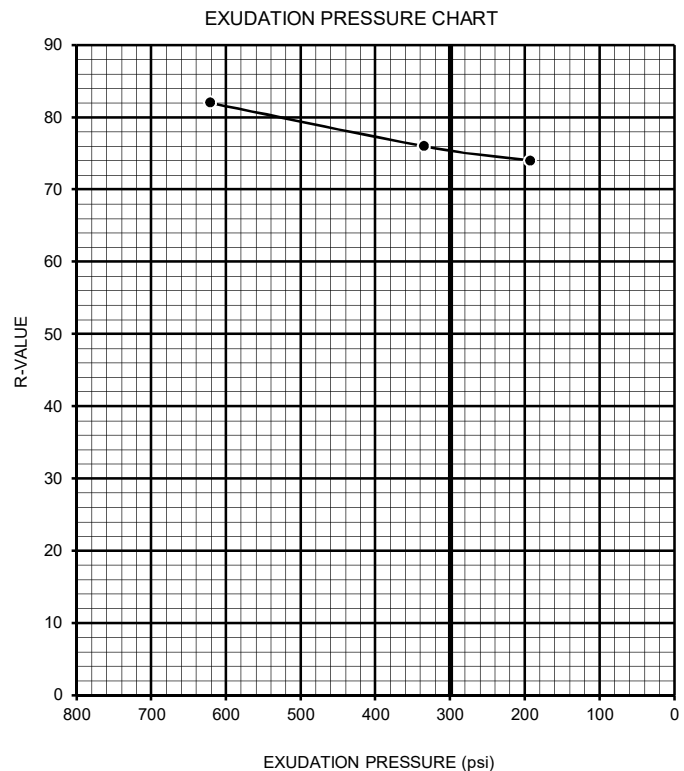
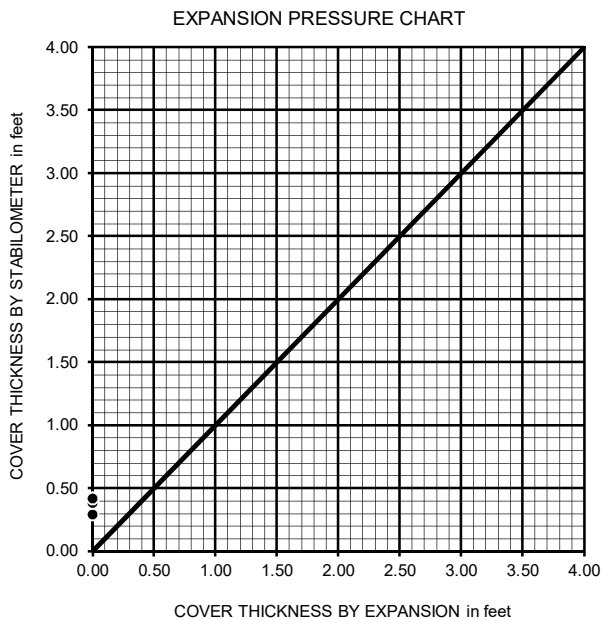
R-VALUE TEST RESULTS

DOT CA Test 301

PROJECT NAME: Fontana FS No 80 PROJECT NUMBER: 13491.001
BORING NUMBER: LB-5 DEPTH (FT.): 0-5
SAMPLE NUMBER: B-1 TECHNICIAN: O. Figueroa
SAMPLE DESCRIPTION: Olive brown silty sand with gravel (SM)g DATE COMPLETED: 4/18/2022

| TEST SPECIMEN | a | b | c |
|---|-------|-------|-------|
| MOISTURE AT COMPACTION % | 6.7 | 7.2 | 7.6 |
| HEIGHT OF SAMPLE, Inches | 2.47 | 2.44 | 2.43 |
| DRY DENSITY, pcf | 135.2 | 134.1 | 135.0 |
| COMPACTOR PRESSURE, psi | 320 | 250 | 225 |
| EXUDATION PRESSURE, psi | 621 | 335 | 193 |
| EXPANSION, Inches x 10 ^{exp-4} | 0 | 0 | 0 |
| STABILITY Ph 2,000 lbs (160 psi) | 16 | 18 | 20 |
| TURNS DISPLACEMENT | 4.99 | 5.50 | 5.60 |
| R-VALUE UNCORRECTED | 82 | 78 | 76 |
| R-VALUE CORRECTED | 82 | 76 | 74 |

| DESIGN CALCULATION DATA | a | b | c |
|-----------------------------------|------|------|------|
| GRAVEL EQUIVALENT FACTOR | 1.0 | 1.0 | 1.0 |
| TRAFFIC INDEX | 5.0 | 5.0 | 5.0 |
| STABILOMETER THICKNESS, ft. | 0.29 | 0.38 | 0.42 |
| EXPANSION PRESSURE THICKNESS, ft. | 0.00 | 0.00 | 0.00 |



R-VALUE BY EXPANSION: N/A
R-VALUE BY EXUDATION: 75
EQUILIBRIUM R-VALUE: 75



ONE-DIMENSIONAL SWELL OR SETTLEMENT POTENTIAL OF COHESIVE SOILS ASTM D 4546

Project Name: Fontana ES No 80
Project No.: 13491.001
Boring No.: LB-3
Sample No.: R-2
Sample Description: Olive gray poorly-graded sand with silt (SP-SM)

Tested By: G. Bathala Date: 04/26/22
Checked By: A. Santos Date: 04/28/22
Sample Type: Ring
Depth (ft.): 5.0

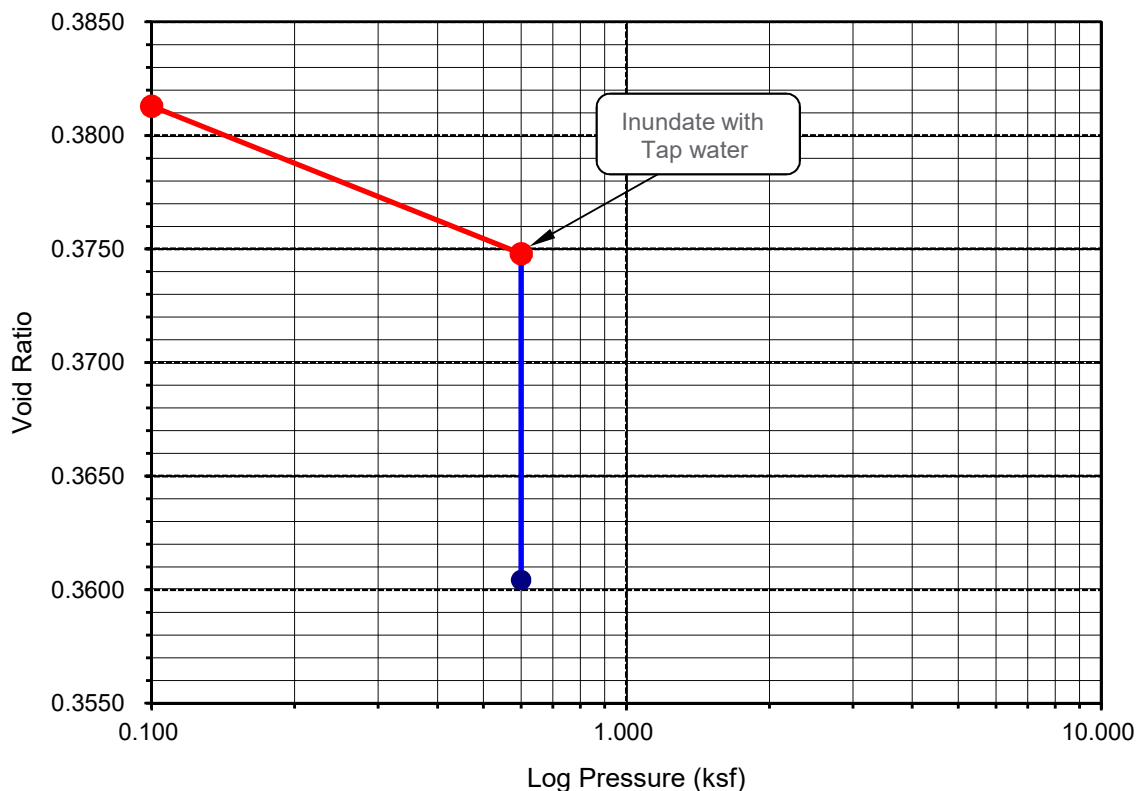
| | |
|----------------------------|--------|
| Initial Dry Density (pcf): | 122.0 |
| Initial Moisture (%): | 1.26 |
| Initial Length (in.): | 1.0000 |
| Initial Dial Reading: | 0.1036 |
| Diameter(in): | 2.415 |


| | |
|----------------------------|--------|
| Final Dry Density (pcf): | 124.3 |
| Final Moisture (%) : | 10.0 |
| Initial Void ratio: | 0.3816 |
| Specific Gravity(assumed): | 2.70 |
| Initial Saturation (%) | 8.9 |

| Pressure (p) (ksf) | Final Reading (in) | Apparent Thickness (in) | Load Compliance (%) | Swell (+) Settlement (-) % of Sample Thickness | Void Ratio | Corrected Deformation (%) |
|-----------------------|-----------------------|-------------------------------|---------------------------|---|------------|---------------------------------|
| 0.100 | 0.1038 | 0.9998 | 0.00 | -0.02 | 0.3813 | -0.02 |
| 0.600 | 0.1100 | 0.9936 | 0.15 | -0.64 | 0.3748 | -0.49 |
| H2O | 0.1204 | 0.9832 | 0.15 | -1.68 | 0.3604 | -1.53 |

Percent Swell (+) / Settlement (-) After Inundation = **-1.05**

Void Ratio - Log Pressure Curve



| | | | | | | | | |
|---|---------------------------|-------------|---------------------------|---------------|---|--|--|--|
| Boring No. | LB-1 | LB-3 | LB-3 | IT-2 | | | | |
| Sample No. | R-3 | R-1 | S-2 | S-1 | | | | |
| Depth (ft.) | 7.5 | 2.5 | 20.0 | 10.0 | | | | |
| Sample Type | Ring | Ring | SPT | Ring | | | | |
| Soil Identification | Grayish brown (SP-SM)g | Brown (SM)g | Grayish brown (SP-SM)g | Gray (SP-SM)g | | | | |
| Moisture Correction | | | | | | | | |
| Wet Weight of Soil + Container (g) | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| Dry Weight of Soil + Container (g) | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| Weight of Container (g) | 1.00 | 1.00 | 1.00 | 1.00 | | | | |
| Moisture Content (%) | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| Sample Dry Weight Determination | | | | | | | | |
| Weight of Sample + Container (g) | 920.60 | 780.60 | 812.30 | 835.50 | | | | |
| Weight of Container (g) | 107.60 | 110.10 | 245.50 | 234.40 | | | | |
| Weight of Dry Sample (g) | 813.00 | 670.50 | 566.80 | 601.10 | | | | |
| Container No.: | | | | | | | | |
| After Wash | | | | | | | | |
| Method (A or B) | A | A | A | A | | | | |
| Dry Weight of Sample + Cont. (g) | 878.70 | 664.40 | 777.40 | 792.40 | | | | |
| Weight of Container (g) | 107.60 | 110.10 | 245.50 | 234.40 | | | | |
| Dry Weight of Sample (g) | 771.10 | 554.30 | 531.90 | 558.00 | | | | |
| | | | | | | | | |
| % Passing No. 200 Sieve | 5.2 | 17.3 | 6.2 | 7.2 | | | | |
| % Retained No. 200 Sieve | 94.8 | 82.7 | 93.8 | 92.8 | | | | |
|  <div style="text-align: center;"> PERCENT PASSING No. 200 SIEVE ASTM D 1140 </div> | | | | | Project Name: <u>Fontana FS No 80</u> | | | |
| | | | | | Project No.: <u>13491.001</u> | | | |
| | | | | | Tested By: <u>S. Felter</u> Date: <u>04/27/22</u> | | | |

APPENDIX C

SEISMIC

Leighton

Apr 2022

[illegible]

$a_{\max} = 0.85g$
 $M_W = 7.9$
 MSF eq: 1
 $MSF = 0.88$
 Hammer Efficiency = 84
 $C_E = 1.40$
 $C_B = 1$
 C_S for SPT? TRUE
 Unlined, but room for liner
 Rod Stickup (feet) = 3
 Ring sample correction = 0.65

Summary of Liquefaction Susceptibility Analysis: SPT Method

Leighton

Liquefaction Method: Youd and Idriss (2001). Seismic Settlement Method: Tokimatsu and Seed (1987) and Martin and Lew (1999).

Project: Fontana Fire Station No. 80; Case 1; PGAm 0.85; design GW 289; No overex 0

Project No.: 13491.001

| Boring No. | Approx. Layer Depth | SPT Depth | Approx Layer Thick-ness | Plasticity ("n"=non susc. to liq.) | Estimated Fines Cont | γ_t | N_m or B | Sampler Type (enter 2 if mod CA Ring) | C_s | N_m (corrected for Cs and ring->SPT) | Exist σ_{vo}' | $(N_1)_{60}$ | $(N_1)_{60CS}$ | $CRR_{7.5}$ | Design σ_{vo}' | $CSR_{7.5}$ | CSR_M | Liquefaction Factor of Safety | $(N_1)_{60CS}$ | Dry Sand Strain (%) | Sat Sand Strain (%) | Seismic Sett. of Layer | Cumulative Seismic Settlement |
|------------|---------------------|-----------|-------------------------|------------------------------------|----------------------|------------|------------|---------------------------------------|-------|--|----------------------|--------------|----------------|-------------|-----------------------|-------------|---------|-------------------------------|------------------|---------------------|---------------------|------------------------|-------------------------------|
| | | | | | | | | | | | | | | | | | | | (for Settlement) | (Tok/ Seed 87) | (Tok/ Seed 87) | | |
| | (ft) | (ft) | (ft) | | (%) | (pcf) | (blows/ft) | | | (blows/ft) | (psf) | | | | (psf) | | | | (blows/ft) | (%) | (%) | (in.) | (in.) |
| LB-1 | 0 to 3.8 | 2.5 | 3.8 | | <u>21</u> | 120 | 39 | 2 | 1 | 25.4 | 300 | 45.2 | 52.9 | >Range | 300 | 0.55 | 0.63 | NonLiq | 52.9 | 0.02 | | 0.01 | 0.1 |
| LB-1 | 3.8 to 6.3 | 5 | 2.5 | | 5 | 120 | 52 | 2 | 1 | 33.8 | 600 | 60.3 | 60.3 | >Range | 600 | 0.55 | 0.62 | NonLiq | 60.3 | 0.07 | | 0.02 | 0.1 |
| LB-1 | 6.3 to 8.8 | 7.5 | 2.5 | | <u>5</u> | 120 | 60 | 2 | 1 | 39.0 | 900 | 66.5 | 66.5 | >Range | 900 | 0.54 | 0.62 | NonLiq | 66.5 | 0.03 | | 0.01 | 0.0 |
| LB-1 | 8.8 to 12.5 | 10 | 3.8 | | 5 | 120 | 100 | 2 | 1 | 65.0 | 1200 | 102.0 | 102.0 | >Range | 1200 | 0.54 | 0.62 | NonLiq | 102.0 | 0.03 | | 0.01 | 0.0 |
| LB-1 | 12.5 to 17.0 | 15 | 4.5 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 1800 | 166.6 | 166.6 | >Range | 1800 | 0.53 | 0.61 | NonLiq | 166.6 | 0.02 | | 0.01 | 0.0 |
| LB-2 | 0 to 3.8 | 2.5 | 3.8 | | 25 | 120 | 25 | 2 | 1 | 16.3 | 300 | 29.0 | 36.6 | >Range | 300 | 0.55 | 0.63 | NonLiq | 36.6 | 0.08 | | 0.04 | 0.2 |
| LB-2 | 3.8 to 6.3 | 5 | 2.5 | | 5 | 120 | 48 | 2 | 1 | 31.2 | 600 | 55.7 | 55.7 | >Range | 600 | 0.55 | 0.62 | NonLiq | 55.7 | 0.08 | | 0.02 | 0.2 |
| LB-2 | 6.3 to 8.8 | 7.5 | 2.5 | | 5 | 120 | 100 | 2 | 1 | 65.0 | 900 | 110.9 | 110.9 | >Range | 900 | 0.54 | 0.62 | NonLiq | 110.9 | 0.02 | | 0.01 | 0.1 |
| LB-2 | 8.8 to 12.5 | 10 | 3.8 | | 5 | 120 | 100 | 2 | 1 | 65.0 | 1200 | 102.0 | 102.0 | >Range | 1200 | 0.54 | 0.62 | NonLiq | 102.0 | 0.03 | | 0.01 | 0.1 |
| LB-2 | 12.5 to 17.5 | 15 | 5.0 | | 5 | 120 | 92 | 1 | 1.3 | 119.6 | 1800 | 153.3 | 153.3 | >Range | 1800 | 0.53 | 0.61 | NonLiq | 153.3 | 0.02 | | 0.01 | 0.1 |
| LB-2 | 17.5 to 22.5 | 20 | 5.0 | | 5 | 120 | 74 | 1 | 1.3 | 96.2 | 2400 | 119.3 | 119.3 | >Range | 2400 | 0.53 | 0.60 | NonLiq | 119.3 | 0.03 | | 0.02 | 0.1 |
| LB-2 | 22.5 to 27.5 | 25 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 3000 | 144.2 | 144.2 | >Range | 3000 | 0.52 | 0.59 | NonLiq | 144.2 | 0.03 | | 0.02 | 0.1 |
| LB-2 | 27.5 to 32.5 | 30 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 3600 | 138.6 | 138.6 | >Range | 3600 | 0.51 | 0.59 | NonLiq | 138.6 | 0.02 | | 0.01 | 0.1 |
| LB-2 | 32.5 to 37.5 | 35 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 4200 | 128.3 | 128.3 | >Range | 4200 | 0.49 | 0.56 | NonLiq | 128.3 | 0.03 | | 0.02 | 0.1 |
| LB-2 | 37.5 to 42.5 | 40 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 4800 | 120.0 | 120.0 | >Range | 4800 | 0.47 | 0.54 | NonLiq | 120.0 | 0.03 | | 0.02 | 0.1 |
| LB-2 | 42.5 to 47.5 | 45 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 5400 | 113.2 | 113.2 | >Range | 5400 | 0.45 | 0.51 | NonLiq | 113.2 | 0.03 | | 0.02 | 0.0 |
| LB-2 | 47.5 to 52.0 | 50 | 4.5 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 6000 | 107.4 | 107.4 | >Range | 6000 | 0.42 | 0.48 | NonLiq | 107.4 | 0.03 | | 0.02 | 0.0 |
| LB-3 | 0 to 3.8 | 2.5 | 3.8 | | <u>17</u> | 120 | 31 | 2 | 1 | 20.2 | 300 | 36.0 | 41.1 | >Range | 300 | 0.55 | 0.63 | NonLiq | 41.1 | 0.02 | | 0.01 | 0.2 |
| LB-3 | 3.8 to 6.3 | 5 | 2.5 | | 5 | 120 | 47 | 2 | 1 | 30.6 | 600 | 54.5 | 54.5 | >Range | 600 | 0.55 | 0.62 | NonLiq | 54.5 | 0.08 | | 0.02 | 0.2 |
| LB-3 | 6.3 to 8.8 | 7.5 | 2.5 | | 5 | 120 | 69 | 2 | 1 | 44.9 | 900 | 76.5 | 76.5 | >Range | 900 | 0.54 | 0.62 | NonLiq | 76.5 | 0.03 | | 0.01 | 0.2 |
| LB-3 | 8.8 to 12.5 | 10 | 3.8 | | 5 | 120 | 100 | 2 | 1 | 65.0 | 1200 | 102.0 | 102.0 | >Range | 1200 | 0.54 | 0.62 | NonLiq | 102.0 | 0.03 | | 0.01 | 0.2 |
| LB-3 | 12.5 to 17.5 | 15 | 5.0 | | 5 | 120 | 67 | 1 | 1.3 | 87.1 | 1800 | 111.6 | 111.6 | >Range | 1800 | 0.53 | 0.61 | NonLiq | 111.6 | 0.02 | | 0.01 | 0.1 |
| LB-3 | 17.5 to 22.5 | 20 | 5.0 | | <u>6</u> | 120 | 67 | 1 | 1.3 | 87.1 | 2400 | 108.1 | 108.6 | >Range | 2400 | 0.53 | 0.60 | NonLiq | 108.6 | 0.03 | | 0.02 | 0.1 |
| LB-3 | 22.5 to 27.5 | 25 | 5.0 | | 5 | 120 | 71 | 1 | 1.3 | 92.3 | 3000 | 102.4 | 102.4 | >Range | 3000 | 0.52 | 0.59 | NonLiq | 102.4 | 0.04 | | 0.03 | 0.1 |
| LB-3 | 27.5 to 32.5 | 30 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 3600 | 138.6 | 138.6 | >Range | 3600 | 0.51 | 0.59 | NonLiq | 138.6 | 0.02 | | 0.01 | 0.1 |
| LB-3 | 32.5 to 37.5 | 35 | 5.0 | | 5 | 120 | 70 | 1 | 1.3 | 91.0 | 4200 | 89.8 | 89.8 | >Range | 4200 | 0.49 | 0.56 | NonLiq | 89.8 | 0.03 | | 0.02 | 0.1 |
| LB-3 | 37.5 to 42.5 | 40 | 5.0 | | 5 | 120 | 90 | 1 | 1.3 | 117.0 | 4800 | 108.0 | 108.0 | >Range | 4800 | 0.47 | 0.54 | NonLiq | 108.0 | 0.03 | | 0.02 | 0.1 |
| LB-3 | 42.5 to 47.5 | 45 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 5400 | 113.2 | 113.2 | >Range | 5400 | 0.45 | 0.51 | NonLiq | 113.2 | 0.03 | | 0.02 | 0.0 |
| LB-3 | 47.5 to 52.0 | 50 | 4.5 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 6000 | 107.4 | 107.4 | >Range | 6000 | 0.42 | 0.48 | NonLiq | 107.4 | 0.03 | | 0.02 | 0.0 |
| LB-4 | 0 to 3.8 | 2.5 | 3.8 | | 20 | 120 | 11 | 2 | 1 | 7.2 | 300 | 12.8 | 17.4 | 0.185 | 300 | 0.55 | 0.63 | NonLiq | 17.4 | 0.80 | | 0.36 | 0.6 |
| LB-4 | 3.8 to 6.3 | 5 | 2.5 | | 5 | 120 | 30 | 2 | 1 | 19.5 | 600 | 34.8 | 34.8 | >Range | 600 | 0.55 | 0.62 | NonLiq | 34.8 | 0.37 | | 0.11 | 0.2 |
| LB-4 | 6.3 to 8.8 | 7.5 | 2.5 | | 5 | 120 | 50 | 2 | 1 | 32.5 | 900 | 55.4 | 55.4 | >Range | 900 | 0.54 | 0.62 | NonLiq | 55.4 | 0.04 | | 0.01 | 0.1 |
| LB-4 | 8.8 to 12.5 | 10 | 3.8 | | 5 | 120 | 100 | 2 | 1 | 65.0 | 1200 | 102.0 | 102.0 | >Range | 1200 | 0.54 | 0.62 | NonLiq | 102.0 | 0.03 | | 0.01 | 0.1 |
| LB-4 | 12.5 to 17.5 | 15 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 1800 | 166.6 | 166.6 | >Range | 1800 | 0.53 | 0.61 | NonLiq | 166.6 | 0.02 | | 0.01 | 0.1 |

| Boring No. | Approx. Layer Depth | SPT Depth | Approx Layer Thickness | Plasticity ("n"=non susc. to liq.) | Estimated Fines Cont | γ_t | N_m or B | Sampler Type (enter 2 if mod CA Ring) | Cs | N_m (corrected for Cs and ring->SPT) | Exist σ_{vo} | $(N_1)_{60}$ | $(N_1)_{60CS}$ | $CRR_{7.5}$ | Design σ_{vo} | $CSR_{7.5}$ | CSR_M | Liquefaction Factor of Safety | $(N_1)_{60CS}$ (for Settlement) | Dry Sand Strain (%) (Tok/ Seed 87) | Sat Sand Strain (%) (Tok/ Seed 87) | Seismic Sett. of Layer | Cummulative Seismic Settlement |
|------------|---------------------|-----------|------------------------|------------------------------------|----------------------|------------|------------|---------------------------------------|-----|--|---------------------|--------------|----------------|-------------|----------------------|-------------|---------|-------------------------------|---------------------------------|------------------------------------|------------------------------------|------------------------|--------------------------------|
| | (ft) | (ft) | (ft) | | (%) | (pcf) | (blows/ft) | | | (blows/ft) | (psf) | | | | (psf) | | | | (blows/ft) | (%) | (%) | (in.) | (in.) |
| LB-4 | 17.5 to 22.5 | 20 | 5.0 | | 5 | 120 | 69 | 1 | 1.3 | 89.7 | 2400 | 111.3 | 111.3 | >Range | 2400 | 0.53 | 0.60 | NonLiq | 111.3 | 0.03 | | 0.02 | 0.1 |
| LB-4 | 22.5 to 27.5 | 25 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 3000 | 144.2 | 144.2 | >Range | 3000 | 0.52 | 0.59 | NonLiq | 144.2 | 0.03 | | 0.02 | 0.0 |
| LB-4 | 27.5 to 32.0 | 30 | 4.5 | | 5 | 120 | 58 | 1 | 1.3 | 75.4 | 3600 | 80.4 | 80.4 | >Range | 3600 | 0.51 | 0.59 | NonLiq | 80.4 | 0.04 | | 0.02 | 0.0 |
| LB-5 | 0 to 3.8 | 2.5 | 3.8 | | 5 | 120 | 31 | 2 | 1 | 20.2 | 300 | 36.0 | 36.0 | >Range | 300 | 0.55 | 0.63 | NonLiq | 36.0 | 0.08 | | 0.04 | 0.2 |
| LB-5 | 3.8 to 6.3 | 5 | 2.5 | | 5 | 120 | 29 | 2 | 1 | 18.9 | 600 | 33.6 | 33.6 | >Range | 600 | 0.55 | 0.62 | NonLiq | 33.6 | 0.39 | | 0.12 | 0.2 |
| LB-5 | 6.3 to 8.8 | 7.5 | 2.5 | | 5 | 120 | 57 | 2 | 1 | 37.1 | 900 | 63.2 | 63.2 | >Range | 900 | 0.54 | 0.62 | NonLiq | 63.2 | 0.03 | | 0.01 | 0.1 |
| LB-5 | 8.8 to 12.5 | 10 | 3.8 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 1200 | 204.1 | 204.1 | >Range | 1200 | 0.54 | 0.62 | NonLiq | 204.1 | 0.02 | | 0.01 | 0.1 |
| LB-5 | 12.5 to 17.5 | 15 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 1800 | 166.6 | 166.6 | >Range | 1800 | 0.53 | 0.61 | NonLiq | 166.6 | 0.02 | | 0.01 | 0.0 |
| LB-5 | 17.5 to 22.5 | 20 | 5.0 | | 5 | 120 | 100 | 1 | 1.3 | 130.0 | 2400 | 161.3 | 161.3 | >Range | 2400 | 0.53 | 0.60 | NonLiq | 161.3 | 0.02 | | 0.01 | 0.0 |
| LB-5 | 22.5 to 27.0 | 25 | 4.5 | | 5 | 120 | 85 | 1 | 1.3 | 110.5 | 3000 | 122.6 | 122.6 | >Range | 3000 | 0.52 | 0.59 | NonLiq | 122.6 | 0.04 | | 0.02 | 0.0 |



Latitude, Longitude: 34.1343, -117.4881



| | |
|--------------------------------|-----------------------|
| Date | 4/20/2022, 9:25:46 AM |
| Design Code Reference Document | ASCE7-16 |
| Risk Category | IV |
| Site Class | D - Stiff Soil |

| Type | Value | Description |
|----------|--------------------------|--|
| S_S | 1.907 | MCE_R ground motion. (for 0.2 second period) |
| S_1 | 0.625 | MCE_R ground motion. (for 1.0s period) |
| S_{MS} | 1.907 | Site-modified spectral acceleration value |
| S_{M1} | null -See Section 11.4.8 | Site-modified spectral acceleration value |
| S_{DS} | 1.272 | Numeric seismic design value at 0.2 second SA |
| S_{D1} | null -See Section 11.4.8 | Numeric seismic design value at 1.0 second SA |

| Type | Value | Description |
|-----------|--------------------------|---|
| SDC | null -See Section 11.4.8 | Seismic design category |
| F_a | 1 | Site amplification factor at 0.2 second |
| F_v | null -See Section 11.4.8 | Site amplification factor at 1.0 second |
| PGA | 0.775 | MCE_G peak ground acceleration |
| F_{PGA} | 1.1 | Site amplification factor at PGA |
| PGA_M | 0.853 | Site modified peak ground acceleration |
| T_L | 12 | Long-period transition period in seconds |
| SsRT | 2.066 | Probabilistic risk-targeted ground motion. (0.2 second) |
| SsUH | 2.246 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration |
| SsD | 1.907 | Factored deterministic acceleration value. (0.2 second) |
| S1RT | 0.798 | Probabilistic risk-targeted ground motion. (1.0 second) |
| S1UH | 0.889 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration. |
| S1D | 0.625 | Factored deterministic acceleration value. (1.0 second) |
| PGAd | 0.775 | Factored deterministic acceleration value. (Peak Ground Acceleration) |
| C_{RS} | 0.92 | Mapped value of the risk coefficient at short periods |
| C_{R1} | 0.897 | Mapped value of the risk coefficient at a period of 1 s |

DISCLAIMER

While the information presented on this website is believed to be correct, SEAOC / OSHPD and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in this web application should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. SEAOC / OSHPD do not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the seismic data provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the search results of this website.

Unified Hazard Tool



Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the [U.S. Seismic Design Maps web tools](#) (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

^ Input

Edition

Dynamic: Conterminous U.S. 2014 (u...

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

34.1343

Time Horizon

Return period in years

2475

Longitude

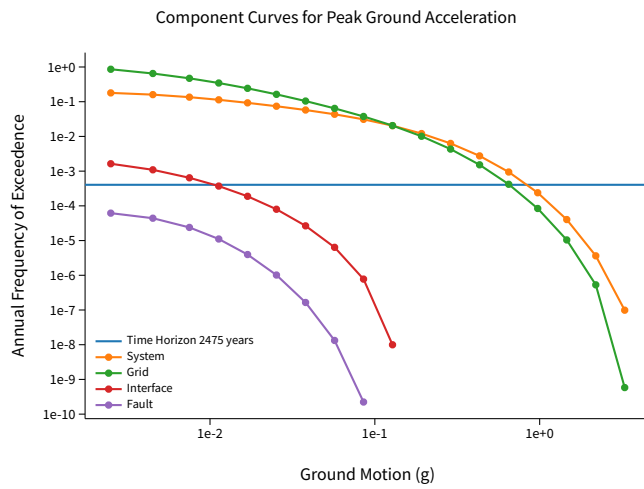
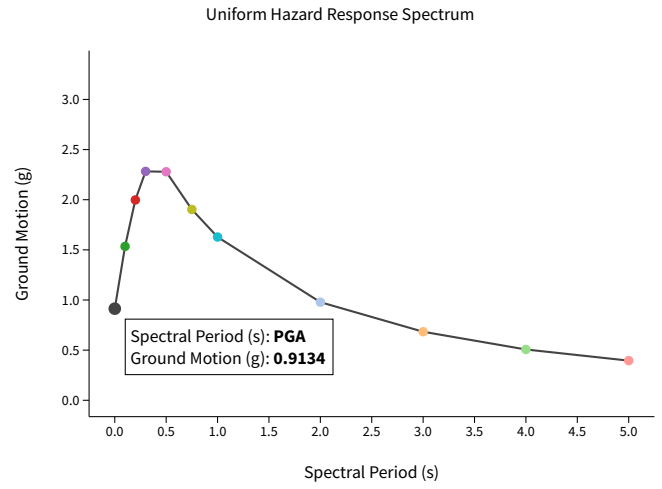
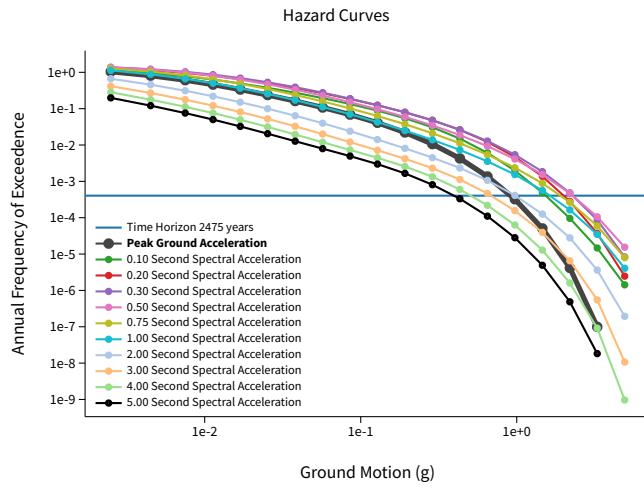
Decimal degrees, negative values for western longitudes

-117.4881

Site Class

259 m/s (Site class D)

^ Hazard Curve

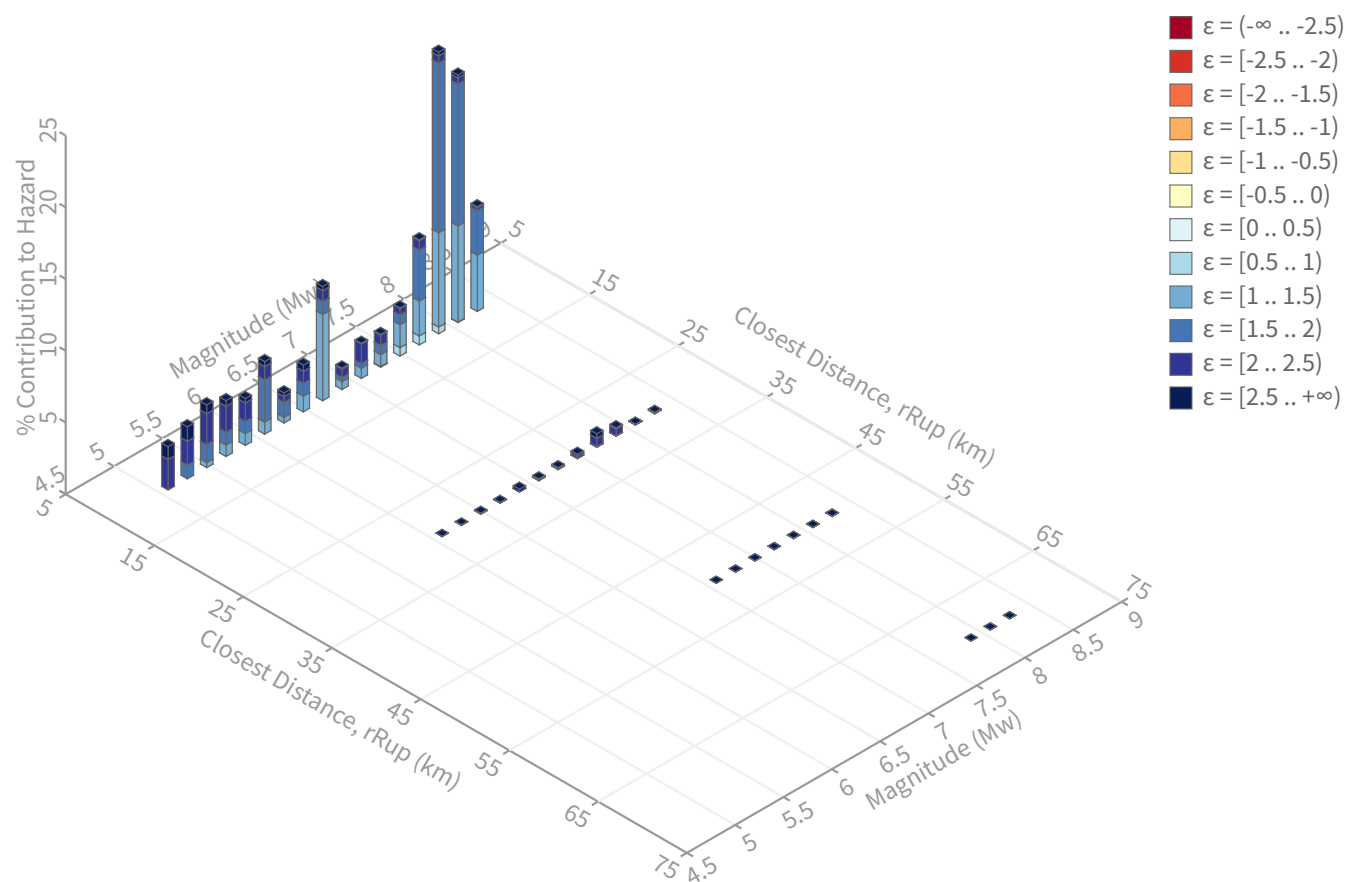


[View Raw Data](#)

^ Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr⁻¹
PGA ground motion: 0.9133858 g

Recovered targets

Return period: 3217.2647 yrs
Exceedance rate: 0.00031082304 yr⁻¹

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.01 %

Mean (over all sources)

m: 7.18
r: 9.92 km
ε₀: 1.72 σ

Mode (largest m-r bin)

m: 7.9
r: 10.62 km
ε₀: 1.59 σ
Contribution: 19.61 %

Mode (largest m-r-ε₀ bin)

m: 7.91
r: 12.99 km
ε₀: 1.76 σ
Contribution: 11.83 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

- ε0:** [-∞ .. -2.5)
- ε1:** [-2.5 .. -2.0)
- ε2:** [-2.0 .. -1.5)
- ε3:** [-1.5 .. -1.0)
- ε4:** [-1.0 .. -0.5)
- ε5:** [-0.5 .. 0.0)
- ε6:** [0.0 .. 0.5)
- ε7:** [0.5 .. 1.0)
- ε8:** [1.0 .. 1.5)
- ε9:** [1.5 .. 2.0)
- ε10:** [2.0 .. 2.5)
- ε11:** [2.5 .. +∞]

Deaggregation Contributors

| Source Set | ↳ Source | Type | r | m | ϵ_0 | lon | lat | az | % |
|----------------------|---|--------|-------|------|--------------|-----------|----------|--------|-------|
| | | | | | | | | | |
| UC33brAvg_FM31 | | System | | | | | | | 37.47 |
| | San Andreas (San Bernardino N) [2] | | 14.25 | 7.80 | 1.87 | 117.395°W | 34.237°N | 36.78 | 12.01 |
| | San Jacinto (San Bernardino) [1] | | 10.66 | 8.06 | 1.56 | 117.421°W | 34.212°N | 35.59 | 8.67 |
| | Cucamonga [0] | | 5.10 | 7.56 | 1.26 | 117.490°W | 34.179°N | 357.61 | 6.36 |
| | Fontana (Seismicity) [0] | | 4.59 | 6.61 | 1.33 | 117.455°W | 34.107°N | 135.17 | 3.89 |
| | San Jacinto (Lytle Creek connector) [1] | | 6.86 | 8.02 | 1.32 | 117.438°W | 34.178°N | 43.48 | 3.09 |
| | | | | | | | | | |
| UC33brAvg_FM32 | | System | | | | | | | 36.59 |
| | San Andreas (San Bernardino N) [2] | | 14.25 | 7.80 | 1.87 | 117.395°W | 34.237°N | 36.78 | 12.19 |
| | San Jacinto (San Bernardino) [1] | | 10.66 | 8.05 | 1.56 | 117.421°W | 34.212°N | 35.59 | 8.54 |
| | Cucamonga [0] | | 5.10 | 7.59 | 1.26 | 117.490°W | 34.179°N | 357.61 | 6.35 |
| | Fontana (Seismicity) [0] | | 4.59 | 6.61 | 1.33 | 117.455°W | 34.107°N | 135.17 | 3.18 |
| | San Jacinto (Lytle Creek connector) [1] | | 6.86 | 8.02 | 1.33 | 117.438°W | 34.178°N | 43.48 | 3.01 |
| | | | | | | | | | |
| UC33brAvg_FM31 (opt) | | Grid | | | | | | | 12.98 |
| | PointSourceFinite: -117.488, 34.166 | | 6.28 | 5.60 | 1.79 | 117.488°W | 34.166°N | 0.00 | 2.86 |
| | PointSourceFinite: -117.488, 34.166 | | 6.28 | 5.60 | 1.79 | 117.488°W | 34.166°N | 0.00 | 2.86 |
| | PointSourceFinite: -117.488, 34.202 | | 8.81 | 5.69 | 2.15 | 117.488°W | 34.202°N | 0.00 | 1.38 |
| | PointSourceFinite: -117.488, 34.202 | | 8.81 | 5.69 | 2.15 | 117.488°W | 34.202°N | 0.00 | 1.38 |
| | PointSourceFinite: -117.488, 34.211 | | 9.48 | 5.74 | 2.21 | 117.488°W | 34.211°N | 0.00 | 1.06 |
| | PointSourceFinite: -117.488, 34.211 | | 9.48 | 5.74 | 2.21 | 117.488°W | 34.211°N | 0.00 | 1.06 |
| | | | | | | | | | |
| UC33brAvg_FM32 (opt) | | Grid | | | | | | | 12.96 |
| | PointSourceFinite: -117.488, 34.166 | | 6.28 | 5.60 | 1.79 | 117.488°W | 34.166°N | 0.00 | 2.86 |
| | PointSourceFinite: -117.488, 34.166 | | 6.28 | 5.60 | 1.79 | 117.488°W | 34.166°N | 0.00 | 2.86 |
| | PointSourceFinite: -117.488, 34.202 | | 8.81 | 5.69 | 2.15 | 117.488°W | 34.202°N | 0.00 | 1.38 |
| | PointSourceFinite: -117.488, 34.202 | | 8.81 | 5.69 | 2.15 | 117.488°W | 34.202°N | 0.00 | 1.38 |
| | PointSourceFinite: -117.488, 34.211 | | 9.48 | 5.74 | 2.21 | 117.488°W | 34.211°N | 0.00 | 1.06 |
| | PointSourceFinite: -117.488, 34.211 | | 9.48 | 5.74 | 2.21 | 117.488°W | 34.211°N | 0.00 | 1.06 |

APPENDIX D

GBA'S IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



Telephone: 301/565-2733

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APPENDIX III

FONTANA WATER COMPANY PLAN
(REFERENCE ONLY)

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA (USA) TO MAKE ARRANGEMENTS TO HAVE ALL KNOWN UTILITY FACILITIES MARKED 48 HOURS PRIOR TO BEGINNING CONSTRUCTION ON THIS PROJECT. THE USA PHONE NUMBER IS: (800) 422-4133.

2. ALL WORK TO BE PERFORMED ON THIS PROJECT SHALL MEET WITH THE APPROVAL OF THE COMPANY'S INSPECTOR AND COMPLY WITH FONTANA WATER COMPANY'S CONTRACT SPECIFICATIONS, CONDITIONS AND STANDARD DRAWINGS DATED JANUARY 1, 1976, AS SUPPLEMENTED AND AMENDED BY REVISIONS NO. 1 AND NO. 2.

4. THE FONTANA WATER COMPANY INSPECTOR SHALL DETERMINE THE EXACT LOCATION FOR THE PROPOSED FIRE HYDRANT IN THE FIELD AT THE TIME OF CONSTRUCTION.

6. THE FONTANA WATER COMPANY INSPECTOR SHALL DETERMINE THE EXACT LOCATION FOR THE PROPOSED FIRE SERVICE AND VAULT IN THE FIELD AT THE TIME OF CONSTRUCTION.

7. THE FONTANA WATER COMPANY INSPECTOR SHALL DETERMINE THE EXACT LOCATION FOR THE PROPOSED DOMESTIC SERVICE AND VAULT IN THE FIELD AT THE TIME OF CONSTRUCTION.

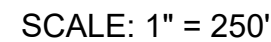
9. WATER METERS SHALL BE SET 18" BEHIND THE CURB FACE.



11. THE FONTANA WATER COMPANY INSPECTOR SHALL NOTIFY THE ENGINEERING DEPARTMENT 48 HOURS PRIOR TO CONSTRUCTION WHENEVER SURVEY WORK IS REQUIRED.

12. STATIONING SHOWN ON THE ATTACHED JOB PLANS IS RELATED TO THE WATER ALIGNMENT ONLY.

13. REFER TO JOB PLANS FOR WIDTHS OF STREETS AND PARKWAYS.

6585 CHERRY AVENUE, FONTANA WATER IMPROVEMENT PLANS



-  PLAN VIEW SHEET NO. _____
 SCHEMATIC SHEET NO. _____

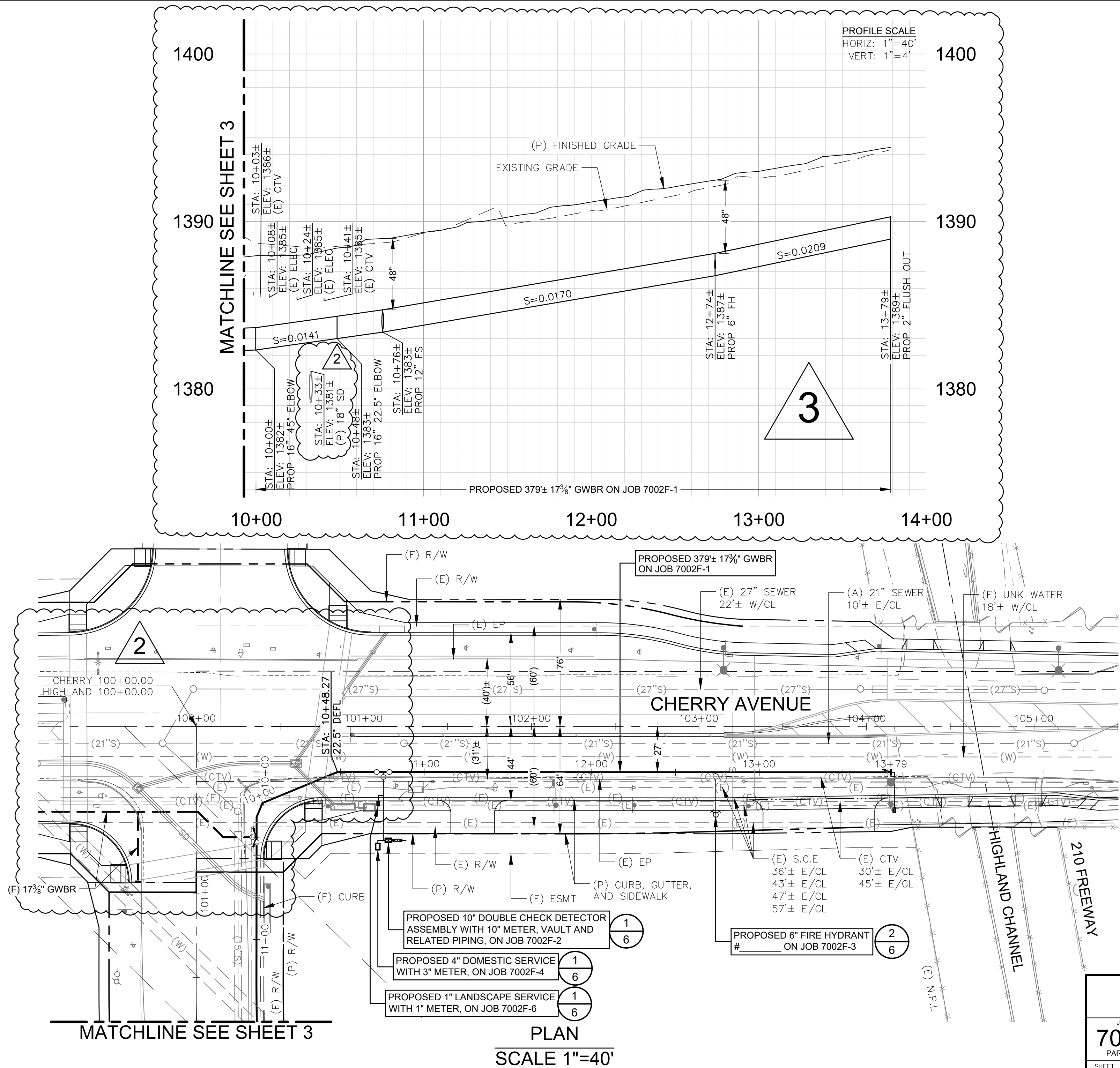


| MAIN SIZE | DEPTH TO TOP OF MAIN LINE OF FLOW FROM GUTTER |
|-----------|---|
| 4"—6" | 36" |
| 8" | 42" |
| 10" | 46" |
| 12" | 48" |
| 14" | 48" |
| 16" | 48" |

| LOCATION | FRANCHISE FOOTAGE | PRIOR RIGHTS FOOTAGE | DESCRIPTION OF PRIOR RIGHTS |
|-----------------------------|----------------------|-------------------------|-----------------------------|
| CHERRY AVENUE | 400' ± | | |
| S. HIGHLAND AVENUE | 2599' ± | | |
| (000) FOOTAGE TO BE RETIRED | | | |

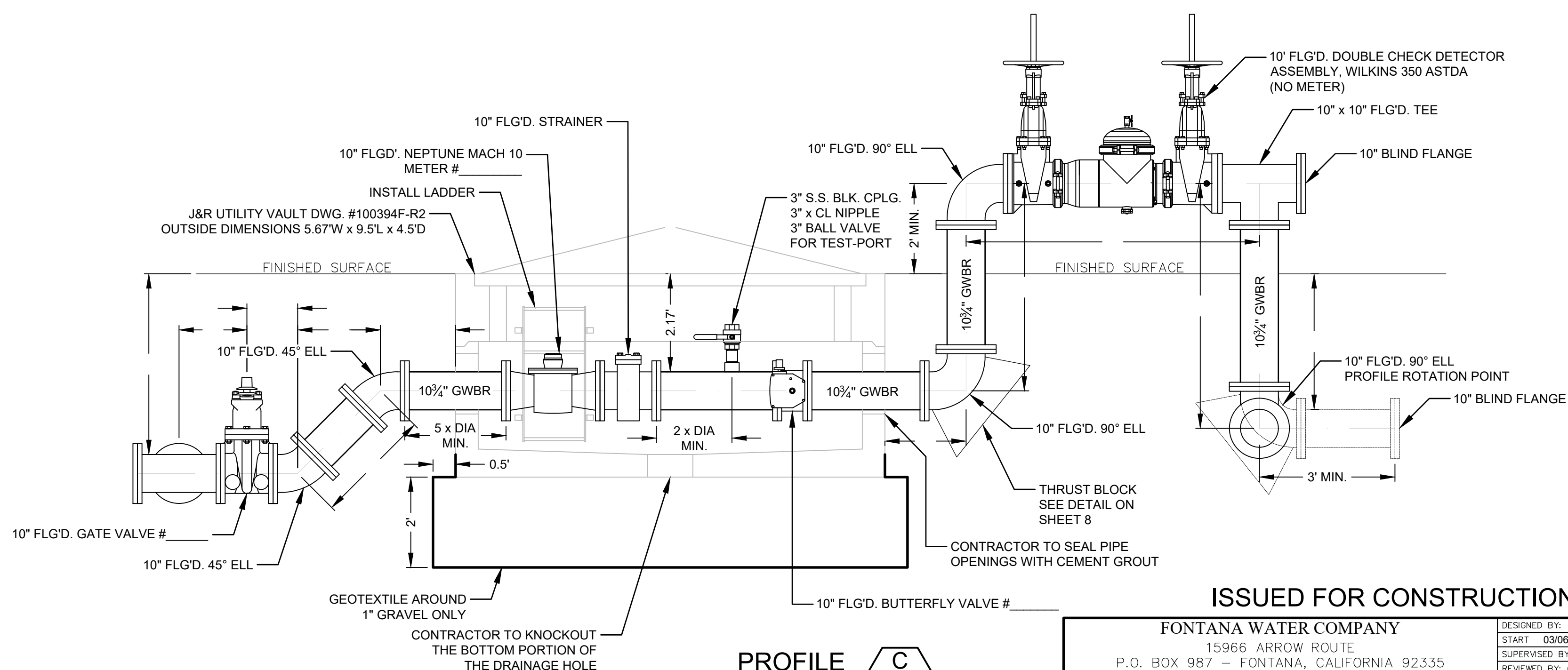
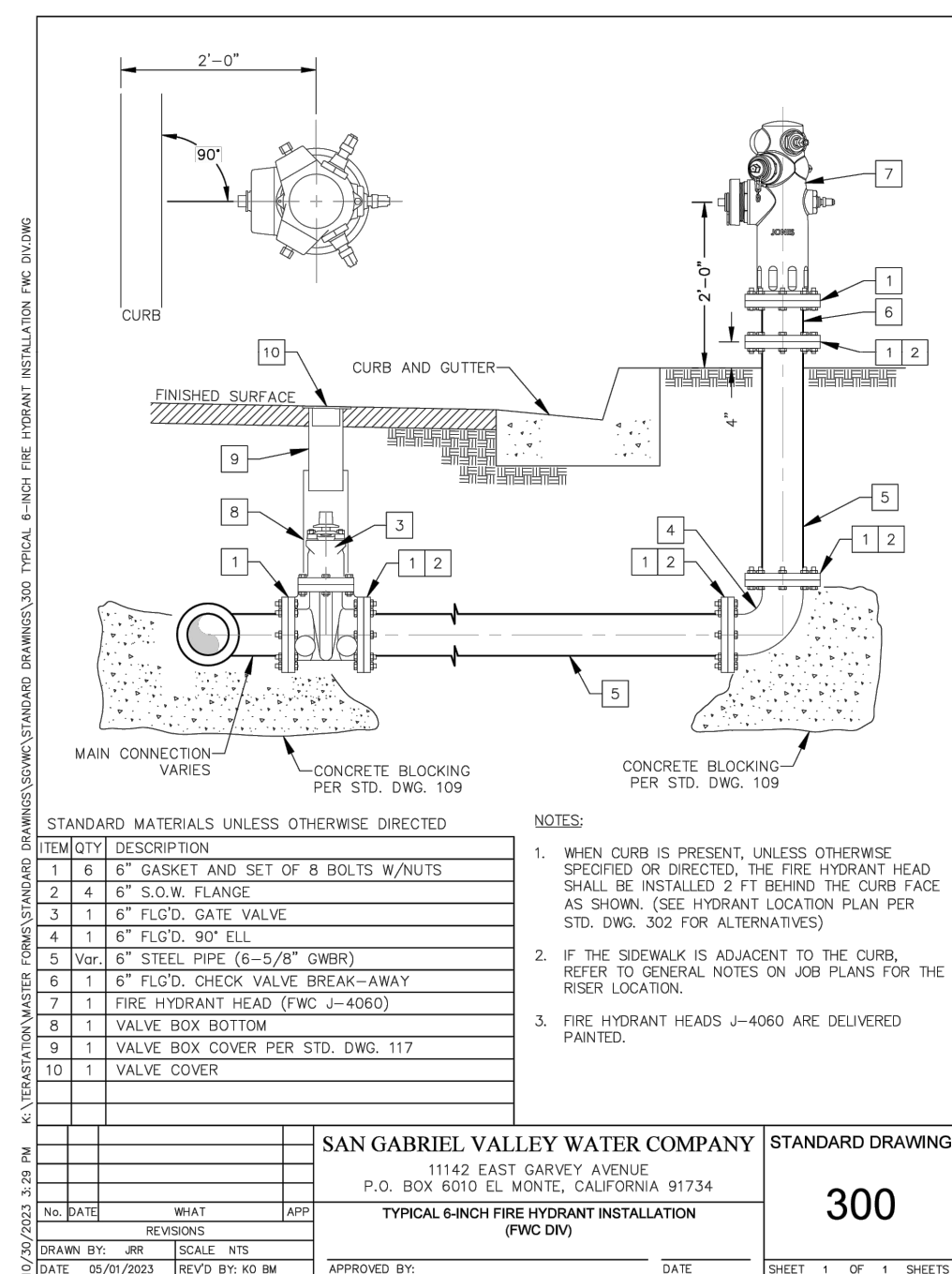
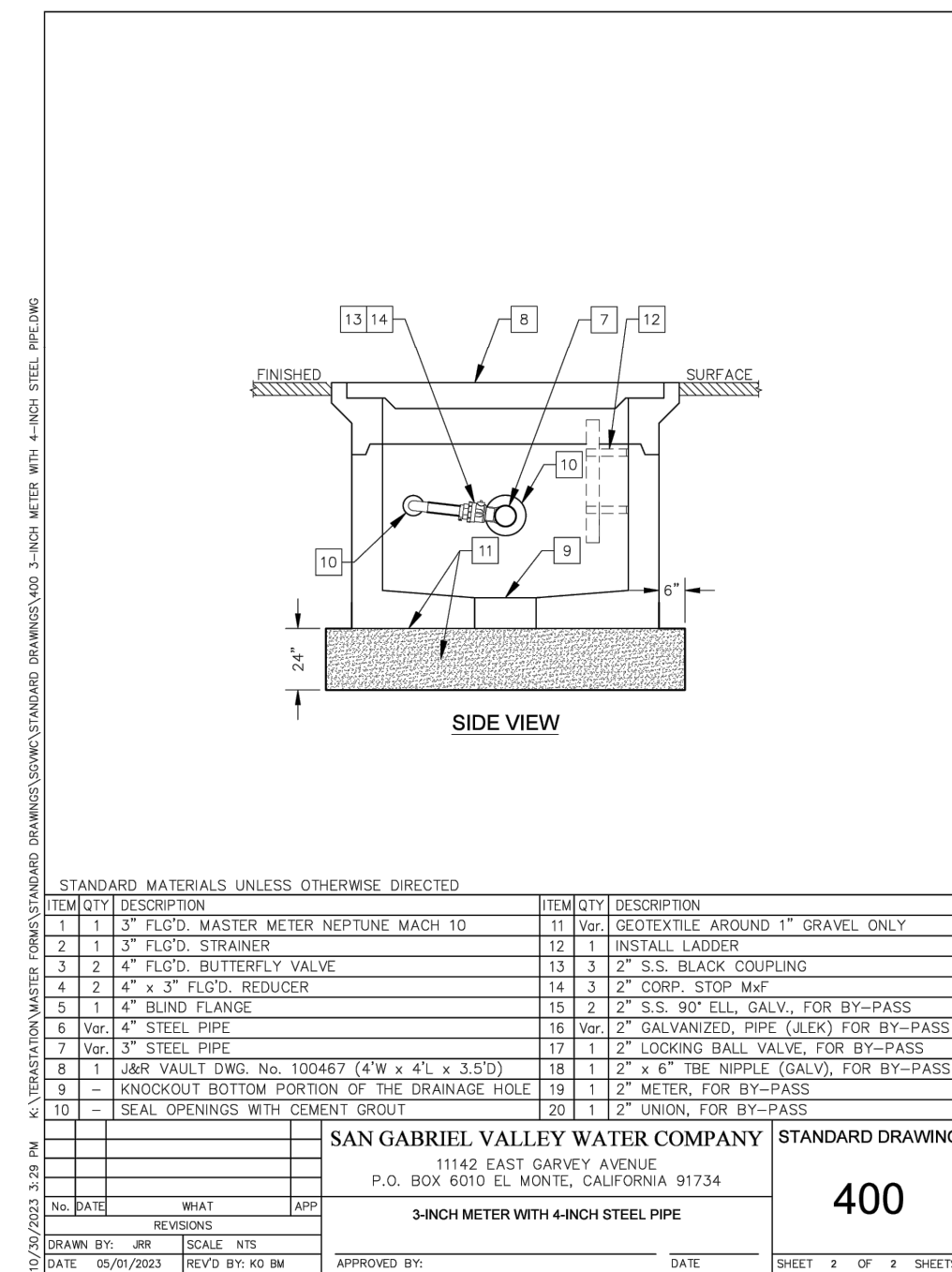
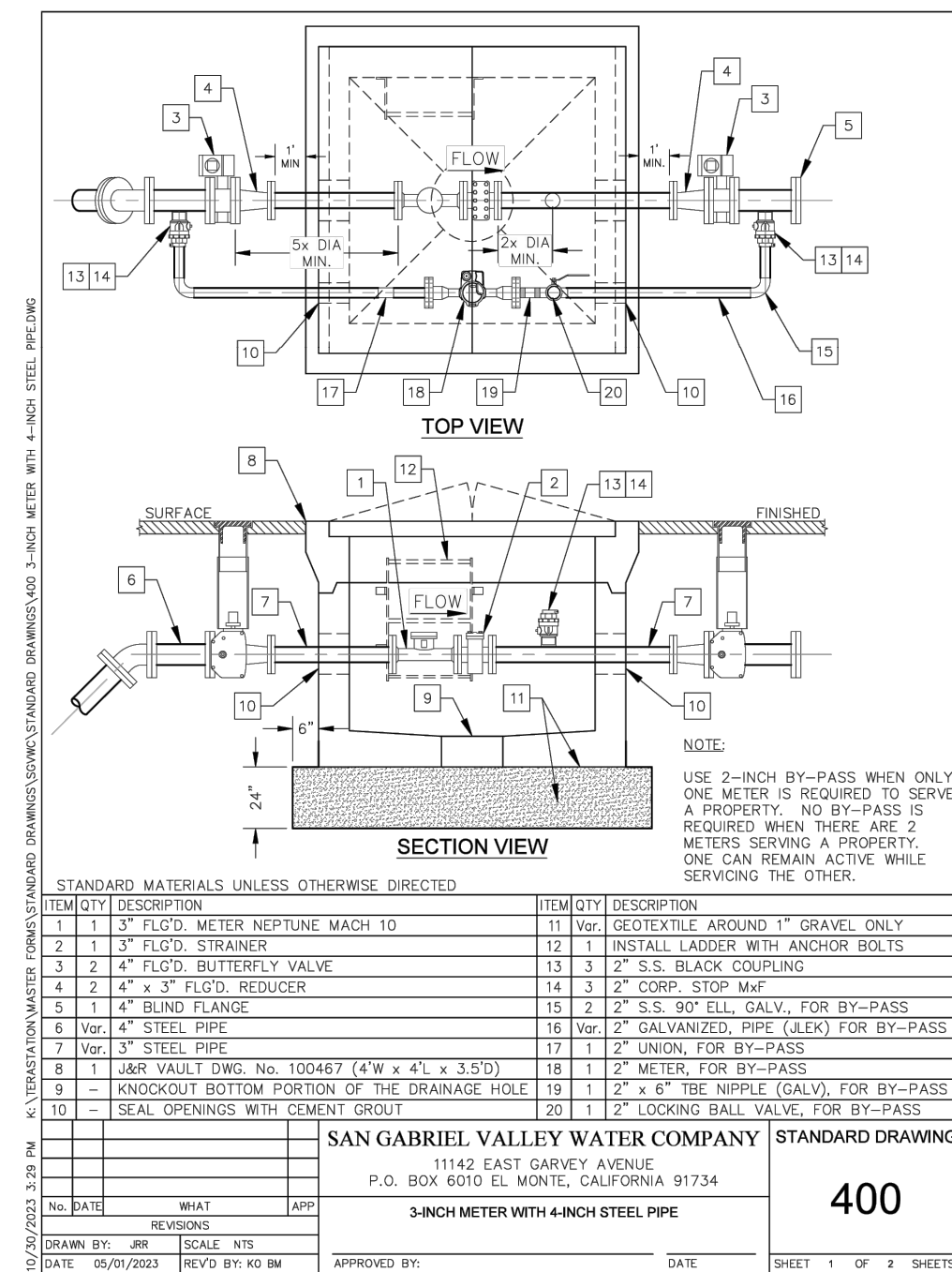
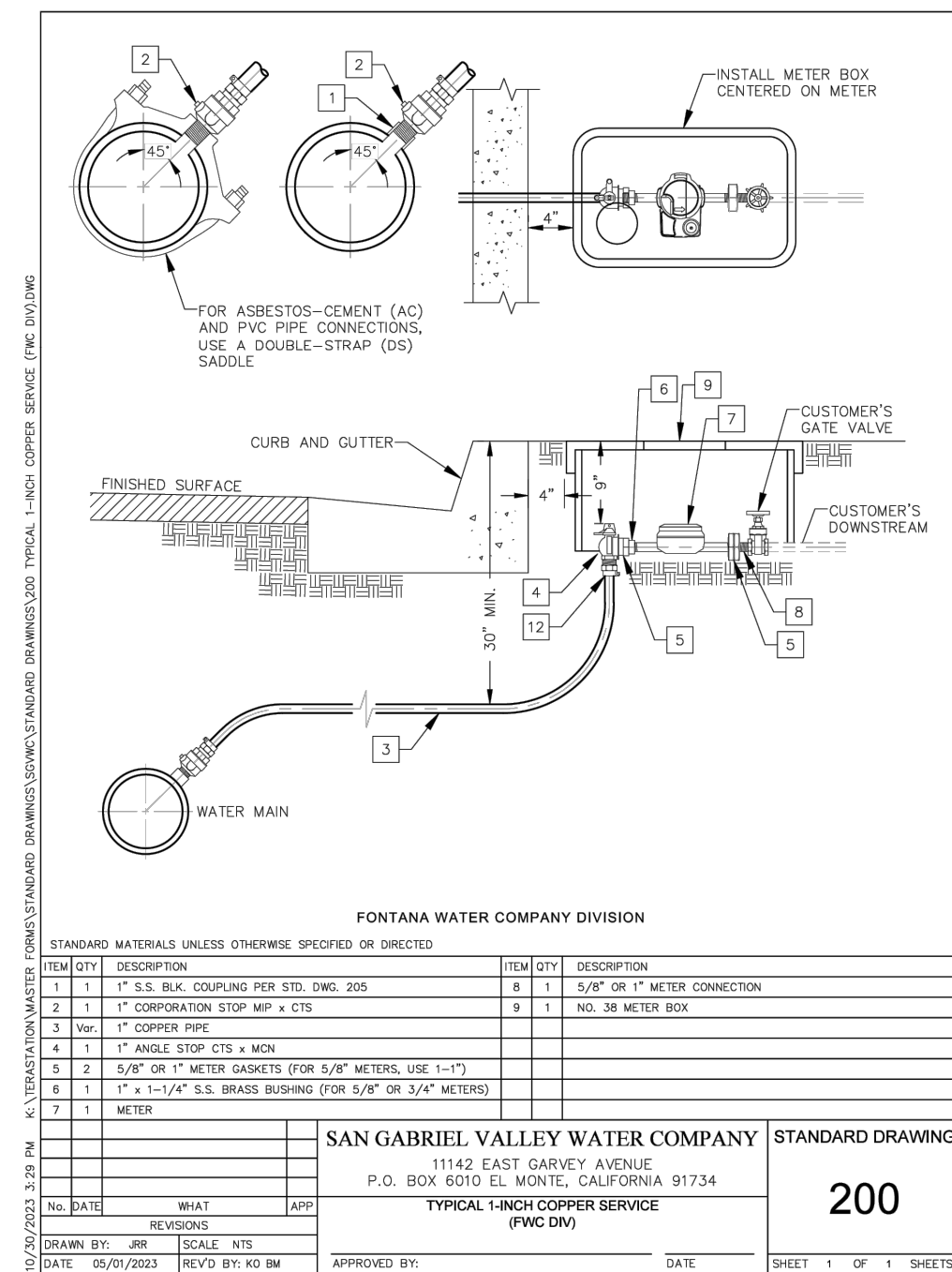
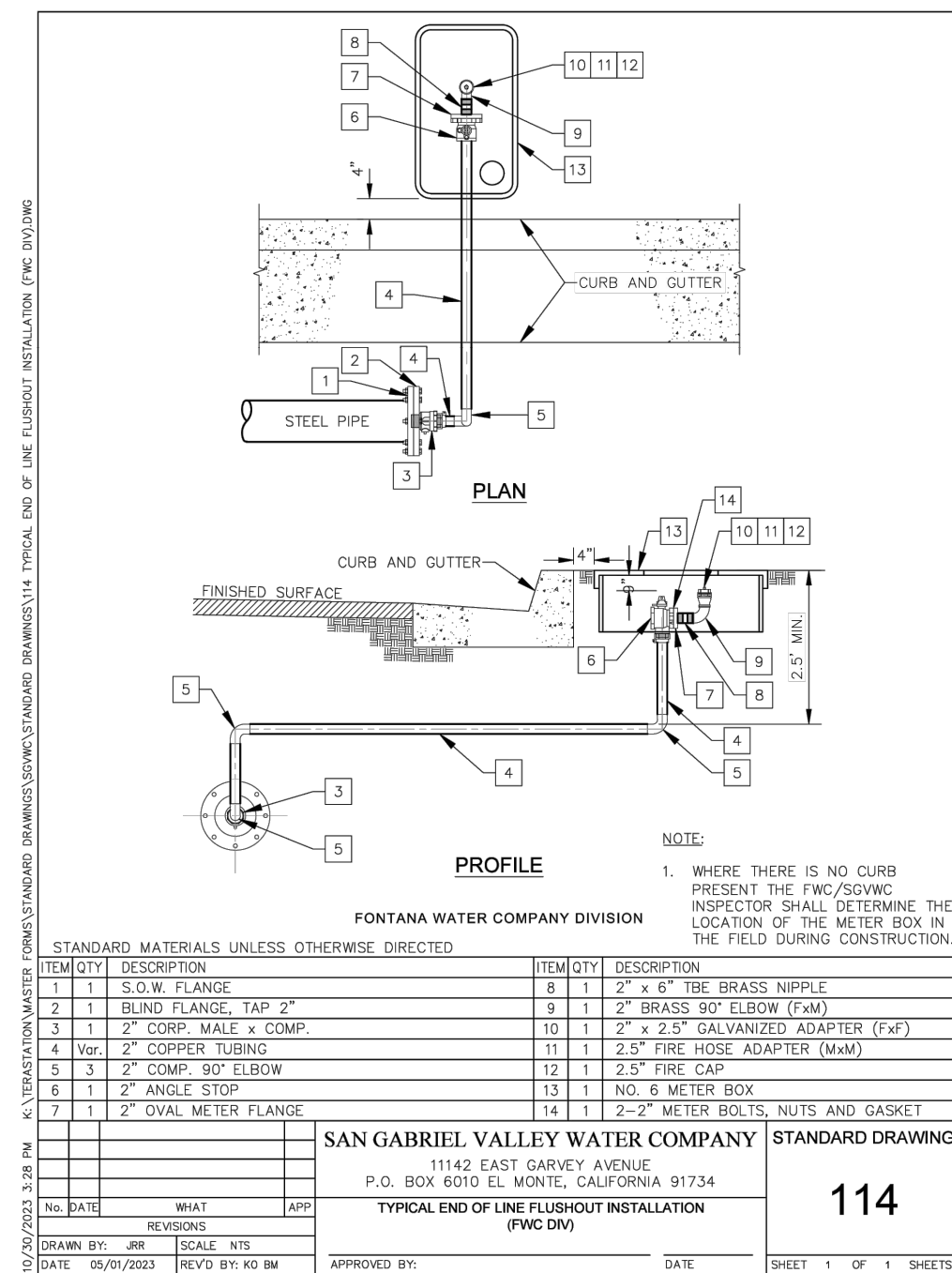
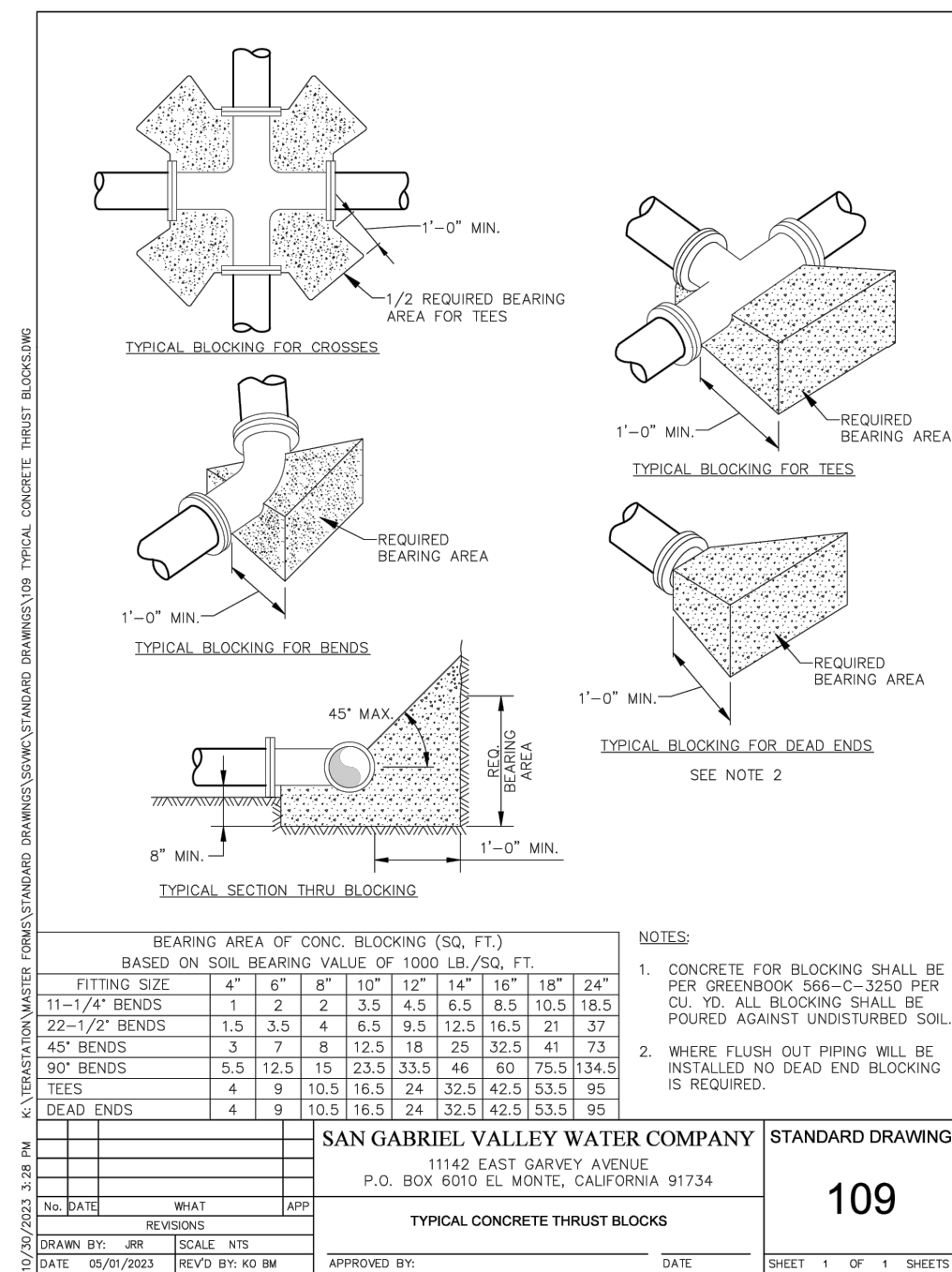
| | | LEGEND | | | | | | | | | |
|------------------|--|--------|----------|--|----------|--|--|--|--|--|---------------|
| PROPOSED MAIN | | | | | | | | | | | |
| EXISTING MAIN | | | | | | | | | | | |
| GAS | | | (G) | | | | | | | | (G) |
| SO. CAL. EDISON | | | (E) | | | | | | | | (E) |
| TELEPHONE | | | (T) | | | | | | | | (T) |
| CABLE TV | | | (CTV) | | | | | | | | (CTV) |
| SEWER | | | (S) | | | | | | | | (S) |
| STORM DRAIN | | | (SD) | | | | | | | | (SD) |
| CURB & GUTTER | | | PROPOSED | | EXISTING | | | | | | TO BE REMOVED |
| EDGE OF PAVEMENT | | | PROPOSED | | EXISTING | | | | | | TO BE REMOVED |

[illegible]




| ISSUED FOR CONSTRUCTION | | | |
|--|---------------------------------|--------------------------------|--|
| FONTANA WATER COMPANY | | DESIGNED BY: RT | |
| 15966 ARROW ROUTE | | START 03/06/24 FINISH 05/14/24 | |
| P.O. BOX 987 - FONTANA, CALIFORNIA 92335 | | SUPERVISED BY: --- | |
| JOB NO. | | REVIEWED BY: CM KG BM | |
| 7002F PARTS 1-4, 6 | FONTANA FIRE TRAINING CENTER | | |
| | 6585 CHERRY AVENUE, FONTANA | | |
| | PLAN AND PROFILE - CHERRY AVE. | | |
| | SHEET 2 OF 8 | | |
| | SHEETS LOCATION CITY OF FONTANA | | |
| SHEET 2 OF 8 | | CONSTRUCTION START --/-- | |
| | | CONSTRUCTION FINISH --/-- | |
| | | AS BUILT COMP. --/-- | |
| | | SCALE AS SHOWN GRID 7910, 8010 | |





ISSUED FOR CONSTRUCTION

FONTANA WATER COMPANY
15966 ARROW ROUTE
BOX 987 - FONTANA, CALIFORNIA 92335

| | | | |
|---|---|--|--|
| FONTANA WATER COMPANY 15966 ARROW ROUTE P.O. BOX 987 - FONTANA, CALIFORNIA 92335 | | | |
| JOB NO. <div style="font-size: 2em; font-weight: bold; margin: 10px 0;">7002F</div> PARTS 1-4, 6 | <div style="text-align: center;">  </div> FONTANA FIRE TRAINING CENTER 6585 CHERRY AVENUE, FONTANA PROFILE AND STANDARD DWGS | | |
| SHEET 8 OF 8 | SHEET LOCATION: CITY OF FONTANA | | |

| | | | |
|---------------------|----------|------------|----------|
| DESIGNED BY: | RT | | |
| START | 03/06/24 | FINISH | 05/14/24 |
| SUPERVISED BY: | --- | | |
| REVIEWED BY: | CM KG BM | | |
| CONSTRUCTION START | --/--/-- | | |
| CONSTRUCTION FINISH | --/--/-- | | |
| AS BUILT COMP. | --/--/-- | | |
| SCALE AS SHOWN | GRID | 7910, 8010 | |

APPENDIX IV
ENVIRONMENTAL MITIGATION
REQUIREMENTS

Fontana Fire Station 80 & Fire Training Center Project

MITIGATION MONITORING AND REPORTING PROGRAM

January 11, 2024

| | |
|-----------------------------|---|
| PROJECT NAME: | Fire Station 80 & Fire Training Center Project |
| PROJECT MANAGER: | Estephany Monroy, Engineering Department |
| PROJECT DESCRIPTION: | Construction of Fire Station 80 and Training Center consists of an approximately 14,663-square-foot fire station, 4,203-square-foot training center, 7,019-square-foot training tower, and an equipment storage area. |
| PROJECT LOCATION: | The Project site is located in the northwestern portion of the City of Fontana, San Bernardino County, California. The triangular parcel is designated Assessor's Parcel Number 0228021460000 and is situated at the northeastern corner of Cherry Avenue and South Highland Avenue. Cherry Avenue borders the site to the west and South Highland Avenue borders the site to the south. A utility easement owned by the Metropolitan Water District (MWD) is adjacent to the southeastern edge of the Project site. Flood control channels managed by the San Bernardino County Flood Control District are located along the northern edge of the Project site. |
| INTRODUCTION: | <p>This document is the Mitigation Monitoring and Reporting Program (MMRP) for the Fontana Fire Station 80 & Fire Training Center. An MMRP is required for the proposed project because the Initial Study/Mitigated Negative Declaration (IS/MND) has identified measures to mitigate impacts. This MMRP has been prepared pursuant to Section 21081.6 of the California Public Resources Code, which requires public agencies to "adopt a reporting and monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment."</p> <p>As the lead agency, the City of Fontana Engineering Department will be responsible for monitoring compliance with all mitigation measures. Additionally, the City of Fontana Building and Safety Department will be responsible for ensuring certain measures are completed. The MMRP identifies the parties with the responsibility for ensuring the measure is completed; however, it is expected that one or more departments will coordinate efforts to ensure compliance.</p> <p>The MMRP is presented in tabular form on the following pages. The components of the MMRP are described briefly below.</p> <ul style="list-style-type: none">• Source and Mitigation Measure: The mitigation measures are taken from the IS/MND, in the same order they appear in the IS/MND.• Timing: Identifies at which stage of the project the mitigation must be completed.• Monitoring Responsibility: Identifies the department in the City with responsibility for mitigation monitoring.• Date Completed and Signature: Provides a contact who reviewed the mitigation measure and the date the measure was determined complete. |

**Mitigation Monitoring and Reporting Program Matrix
Fire Station 80 & Fire Training Center**

| SOURCE | MITIGATION MEASURE | TIMING | MONITORING | DATE COMPLETED | SIGNATURE |
|--|--|--|---|----------------|-----------|
| <u>BIOLOGICAL RESOURCES</u> | | | | | |
| Draft MND Section 4.4 – Biological Resources | <u>Biological Resources Mitigation Measure 1 (MM BIO-1)</u> Should construction occur during the nesting bird season (February 1 to August 31), a pre-construction nesting bird survey shall be conducted approximately 3 days prior to ground-disturbing activities by a qualified biologist retained by the Applicant. If nests are found during surveys, they shall be flagged and a 250-foot buffer to a 500-foot buffer (for raptors) shall be fenced around the nests. The buffer area shall be kept in place until the young have fledged and leave the nest. To the maximum extent practicable, a minimum buffer zone around occupied nests should be determined by a qualified biologist to avoid impacts to the active nest. The buffer should be maintained during physical ground-disturbing activities. Once nesting has ceased, the buffer may be removed. | Beginning prior to ground disturbing activities and continuing throughout construction | City of Fontana Engineering Department | | |
| <u>CULTURAL RESOURCES</u> | | | | | |
| Draft MND Section 4.5 – Cultural Resources | <u>Cultural Resources Mitigation Measure 1 (MM CUL-1)</u> The Applicant shall retain the services of a Qualified Archaeologist, meeting the Secretary of the Interior Standards or County standards, whichever is greater, and require that all initial ground-disturbing work be monitored by archaeological specialist (monitor) proficient in artifact and feature identification in monitoring contexts. The Consultant (Qualified Archaeologist and/or monitor) shall be present at the Project construction phase kickoff meeting. | Start of Construction and During Grading | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |

| SOURCE | MITIGATION MEASURE | TIMING | MONITORING | DATE COMPLETED | SIGNATURE |
|--|---|---|---|----------------|-----------|
| Draft MND Section 4.5 – Cultural Resources | <p><u>Cultural Resources Mitigation Measure 2 (MM CUL-2)</u></p> <p>Prior to commencing construction activities and thus prior to any ground disturbance in the Proposed Project site, the Consultant shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the Project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. A tribal monitor shall be provided an opportunity to attend the pre-construction briefing, if requested. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to archaeological resources and maintain environmental compliance. This WEAP training will educate the monitor(s) of construction procedures to avoid construction-related injury or harm. This training may be performed periodically, such as for new personnel coming on to the Project as needed.</p> | Prior to Starting Construction | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |
| Draft MND Section 4.5 – Cultural Resources | <p><u>Cultural Resources Mitigation Measure 3 (MM CUL-3)</u></p> <p>The Contractor shall provide the Consultant with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided to the Consultant of commencement of any initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation.</p> <p>A monitor shall be present on-site at the commencement of ground-disturbing activities related to the Project. The monitor, in consultation with the Qualified Archaeologist, shall observe initial ground-disturbing activities and, as they proceed, adjust the number of monitors as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of the Project.</p> <p>The Consultant and the Lead Contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight.</p> | Start of Construction and During Grading g. | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |

| SOURCE | MITIGATION MEASURE | TIMING | MONITORING | DATE COMPLETED | SIGNATURE |
|--|--|-----------------|---|----------------|-----------|
| Draft MND Section 4.5 – Cultural Resources | <p><u>Cultural Resources Mitigation Measure 4 (MM CUL-4)</u></p> <p>In the event of the discovery of previously unidentified archaeological materials, the Contractor shall immediately cease all work activities within an area of no less than 60 feet (approximately 18 meters) of the discovery. After cessation of excavation, the Contractor shall immediately contact the City. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation Act, the California Health and Safety Code 7050.5, CEQA Section 15064.5, or California Public Resources Code Section 5097.98, the discovery of any cultural resource within the Project area shall not be grounds for a project-wide “stop work” notice or otherwise interfere with the Project’s continuation except as set forth in this paragraph. Additionally, all consulting Native American Tribal groups that requested notification of any unanticipated discovery of archaeological resources on the Project shall be notified appropriately. If a discovery results in the identification of cultural items that fall within the scope of the Native American Grave Protection and Repatriation Act, the Contractor shall immediately cease all work activities within an area of no less than 100 feet (30 meters) of the discovery. In the event of an unanticipated discovery of archaeological materials during construction, the Applicant retained Qualified Archaeologist shall be contacted to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If the Qualified Archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the Applicant shall implement an archaeological data recovery program.</p> | During Grading. | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |
| Draft MND Section 4.5 – Cultural Resources | <p><u>Cultural Resources Mitigation Measure 5 (MM CUL-5)</u></p> <p>In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and the Qualified Archaeologist shall assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed within TCR-1, regarding any pre-contact and/or historic-era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.</p> <p>If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to YSMN for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.</p> | During Grading. | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |

| SOURCE | MITIGATION MEASURE | TIMING | MONITORING | DATE COMPLETED | SIGNATURE |
|--|---|-----------------|---|----------------|-----------|
| Draft MND Section 4.5 – Cultural Resources | <u>Cultural Resources Mitigation Measure 6 (MM CUL-6)</u> At the completion of all ground-disturbing activities, the Consultant shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the SCCIC, as required. | During Grading. | Contractor, qualified archaeologist, the City of Fontana Engineering Dept | | |
| Draft MND Section 4.5 – Cultural Resources | <u>Cultural Resources Mitigation Measure 7 (MM CUL-7)</u> In the unlikely event that human remains or other buried materials including funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) the Proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98. As required by state law, the County Coroner shall be notified immediately should humans remains are encountered. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (Appendix C). Compliance with the regulatory standard would result in impacts to be less than significant. | During Grading. | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |
| <u>TRIBAL CULTURAL RESOURCES</u> | | | | | |
| Draft MND Section 4.18 - Tribal Cultural Resources | <u>Tribal Cultural Resources Mitigation Measure 1 (TCR-1)</u> The Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed in CUL-1, of any pre-contact and/or historic-era cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents YSMN for the remainder of the project, should YSMN elect to place a monitor on-site. | During Grading. | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |
| Draft MND Section 4.18 - Tribal Cultural Resources | <u>Tribal Cultural Resources Mitigation Measure 2 (TCR-2)</u> Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to YSMN. The Lead Agency and/or applicant shall, in good faith, consult with YSMN throughout the life of the project. | During Grading. | Contractor, qualified archaeologist, the City of Fontana Engineering Department | | |